

Revised Total Coliform Rule for Ground Water Systems



Disclaimer

This presentation supplements the recorded webinar training conducted by US Environmental Protection Agency (EPA) on the Revised Total Coliform Rule (RTCRC). The training provided guidance to States, Tribes, and EPA Regions that will have RTCRC primacy. These materials are not regulations, nor do they change or substitute for those provisions and regulations under the RTCRC. Thus, they do not impose legally binding requirements. Further, the RTCRC training materials do not confer legal rights or impose legal obligations upon any member of the public.

EPA made every effort to ensure the accuracy of the discussions presented in the webinar and presentation slides, but in the event of a conflict between the discussions in these materials and any statute or regulation, these webinars would not be controlling.



Agenda

12:30 – 2:00 pm ET:	Presentation/polls/scenarios
2:00 – 2:15 pm ET:	Break
2:15 – 3:30 pm ET:	Presentation/polls/scenarios
3:30 – 3:45 pm ET:	Break
3:45 – 4:30 pm ET:	Presentation/polls/scenarios and opportunity for live on-air Q&A (as time permits)

Reminder: Training over the 2 day period is cumulative.

RTCR Training Overview

1. Introduction and Background
2. Sample Siting Plans
3. Compliance Sampling: Routine, Repeat, Dual Rule -GWR & RTCR Samples, and Increased/Reduced monitoring
4. Seasonal Systems
5. Analyzing Samples
6. Assessments & Corrective Actions
7. Categories of RTCR Violations
8. Reporting and Recordkeeping
9. Public Notice & Consumer Confidence Report
10. Other Rule Aspects
11. Summary

- Reference: TCR vs. RTCR Comparison
- Technical Corrections



Introduction

- **About This Training and RTCR Training Series**
- **Training Goals**
- **Guidance Materials and Resources**
- **Background and Key Provisions**
- **Acronyms & Definitions**
- **Applicability**
- **RTCR Purpose**



About The Ground Water System Training Module

- Many of the RTCR requirements are the same for Ground Water Systems and Surface Water Systems
- However, this GW module includes additional requirements applicable to GW systems only:
 - Special monitoring evaluations
 - Reduced monitoring criteria
 - Increase in # of routine samples in the month following a TC+

NOTE: Any system that has a SW, GWUDI, SW or GWUDI blended source(s) are considered surface water systems for purposes of RTCR total coliform monitoring.



RTCR



U.S. EPA Training Webinar Series For Region and State Staff only

[ATTENTION: Schedule Revised November 2013]



About RTCR Training Series

Revised Total Coliform Rule – Requirements for Surface Water Systems

September 24 - 26, 2013

Concluded

Revised Total Coliform Rule – Requirements for Ground Water Systems

December 10 - 12, 2013*

**Revised
Date**

To register for the webinar, please go to:

<https://www2.gotomeeting.com/register/690350122>

Revised Total Coliform Rule – State Primacy Requirements

February 25 - 27, 2014*

To register for the webinar, please go to:

<https://www2.gotomeeting.com/register/583327890>

Revised Total Coliform Rule – Expanding Upon Level 1 and Level 2 Assessments and Corrective Actions

March 18 - 20, 2014*

**Revised
Date**

To register for the webinar, please go to:

<https://www2.gotomeeting.com/register/876771714>

Revised Total Coliform Rule – Requirements for Ground Water Systems

April 22 - 24, 2014*

**Revised
Date**

To register for the webinar, please go to:

<https://www2.gotomeeting.com/register/676922314>



All trainings:

- Take place from 12:30PM - 4:30PM ET
- Are recorded and posted on the Association of State Drinking Water Administrator's website for two months. URL link will be emailed to all registrants when available.



*Trainings on the last day of the series occur only as needed.

Training Goals

- Understand RTCR concepts & requirements
- Understand how RTCR keeps some aspects of the TCR & replaces other portions
- Reinforce learning with polling questions and quizzes and case scenarios

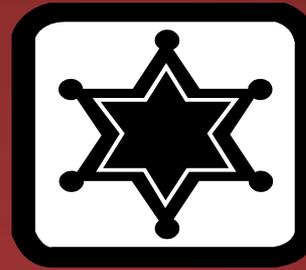
RTCR Ground Water



Training Icons



Customize



Regulators
Only



Important
Speaker NOTE



Animation



Same as TCR
Rule

RT&R
Ground Water



Guidance Documents and Available Resources



Materials Planned for Release in 2013

- **RTCR QRG** (released in September; on EPA website)
- **RTCR Assessments & Corrective Actions Manual-Interim Final** (winter)

RTCR Ground Water



Guidance Documents and Available Resources (cont.)



- Materials Planned for Release in 2014
 - RTCR State Implementation Guidance – Interim Draft (January)
 - RTCR State Implementation Guidance – Interim Final (July)
 - Draft Small Systems Guidance (Systems $\leq 1,000$) (Spring/Summer)
 - Guide/Tool for Small Non-Community Water Systems Serving 1,000 or Less People (Fall/Winter)
 - SDWIS Prime (formerly NextGen): Data Entry Instructions (DEI)

Ground Water



Guidance Documents and Available Resources (cont.)



- Materials Planned for Release in 2015-2016
 - Factsheets (e.g., seasonal systems, repeat monitoring, L1 & L2 assessments and corrective actions)
 - Transition memo (explain transition of TCR non-compliance to RTCR)
 - Update Public Notice (PN) handbook: templates for TNCWS and other systems' handbook
 - Update PN I-Writer for small systems
 - Update PN Matrix Tool
 - Update Consumer Confidence Report (CCR) State Implementation Guide Manual for NPDWRs
 - Update Guidance for preparing CCR
 - Update CCR I-Writer



Background

Ground Water



Questions?

- Why EPA only kept the *E. coli* MCL violation and changed the coliform MCL to a TT violation?
- Why EPA is no longer using fecal coliform as an indicator?

RTCR Ground Water



History of 2013 RTCR

- **Six Year Review - SDWA requires EPA to review and revise, as appropriate, each National Primary Drinking Water Regulation no less often than every six years; In 2003, EPA reviewed and decided to revise the TCR**
- **Advisory Committee – In July 2007, EPA convened the Total Coliform Rule Distribution System Federal Advisory Committee (TCRDSAC), representing 15 organizations.**
- **Agreement in Principle –In Sept 2008, TCRDSAC deliberations concluded with a signed Agreement in Principle (AIP) that included consensus recommendations on how to revise the TCR.**
- **Proposed Rule – In July 2010, EPA proposed an RTCR which had the same substance and effect as the TCRDSAC recommendations.**
- **Final Rule – On Feb. 13, 2013, after considering 134 public comment letters, EPA promulgated the final RTCR.**



TCRDSAC Membership

Organization	Representative
National Rural Water Association	David Baird, City of Milford, DE
Native American Water Association	Thomas Crawford, Native American Water Association
US Environmental Protection Agency	Cynthia Dougherty, USEPA, OGWDW
Environmental Council of the States	Patti Fauver, Utah Department of Environmental Quality
National Association of State Utility Consumer Advocates	Christine Maloni Hoover, PA Office of Consumer Advocate
American Water Works Association	Carrie Lewis, Milwaukee Department of Public Works
National Association of Water Companies	Mark LeChevallier, American Water
Council of State and Territorial Epidemiologists	John Neuberger, University of Kansas Medical Center
Rural Community Assistance Partnership	Harvey Minnigh, RCAP Solutions Inc.
Association of State Drinking Water Administrators	Jerry Smith, Minnesota Department of Health
Clean Water Action	Lynn Thorp, Clean Water Action
National League of Cities	Bruce Tobey, City of Gloucester, MA
National Environmental Health Association	Bob Vincent, Florida Department of Health
Association of Metropolitan Water Agencies	David Visintainer, City of St. Louis Dept. of Public Utilities
Natural Resources Defense Council	Mae Wu, Natural Resources Defense Council

Key Provisions of RTCR (1 of 3)

Monitoring

- Maintains the routine sampling structure of TCR
- Allows systems to transition on their existing TCR monitoring frequency; re-evaluated at sanitary surveys
- Reduces the required number of follow-up samples (repeat and additional routine) for systems serving $\leq 1,000$
- Like TCR, reduced monitoring is available for small systems (GW serving $\leq 1,000$)
- Provides more stringent criteria that systems must meet to qualify for and stay on reduced monitoring
- Requires small systems with problems to monitor more frequently



Key Provisions of RTCR (2 of 3)

Assessment and Corrective Action

- RTCR requires PWSs to investigate the system and correct any sanitary defects found when monitoring results show the system may be vulnerable to contamination
- Systems must conduct a basic self assessment (Level 1) or a more detailed assessment by a qualified party (Level 2) depending on the severity and frequency of contamination
- Failure to assess and correct is a Treatment Technique (TT) violation



Key Provisions of RTCR (3 of 3)

- **Seasonal Systems**
 - Defines “seasonal systems” and requires them to have start-up procedures and sampling during high vulnerability periods
- **Public Notification (PN)**
 - Notify public within 24 hours if system confirms fecal contamination (E. coli)
 - Notify public within 30 days if system does not investigate and fix the identified problem (replaces the PN for total coliform MCL violations, reducing system costs and consumer confusion)
 - Notify public yearly regarding monitoring, reporting and recordkeeping violations (for CWSs, via the Consumer Confidence Report (CCR))



Subpart Y - Revised Total Coliform Rule

- 141.851 General.
- 141.852 Analytical methods and laboratory certification.
- 141.853 General monitoring requirements for all public water systems.
- 141.854 Routine monitoring requirements for non-community water systems serving 1,000 or fewer people using only ground water.
- 141.855 Routine monitoring requirements for community water systems serving 1,000 or fewer people using only ground water.



Subpart Y - Revised Total Coliform Rule (cont'd)

- 141.856 Routine monitoring requirements for subpart H public water systems of this part serving 1,000 or fewer people.
- 141.857 Routine monitoring requirements for public water systems serving more than 1,000 people.
- 141.858 Repeat monitoring and *E. coli* requirements.
- 141.859 Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination.
- 141.860 Violations.
- 141.861 Reporting and recordkeeping.



Acronyms



CWS	Community Water System
EC+	<i>E. coli</i>-Positive
GWR	Ground Water Rule
MCL	Maximum Contaminant Level
NCWS	Non-Community Water System
PN	Public Notification
PWS	Public Water System
RTCR	Revised Total Coliform Rule
TC	Total Coliform
TC+	Total Coliform-Positive
TCR	Total Coliform Rule
TT	Treatment Technique

RTCR Ground Water





Definitions

Public Water System (PWS)	Any entity that provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year.
Community Water System (CWS)	A PWS which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Ground Water

40 CFR 141.2





Definitions (cont.)

Non-community water system (NCWS)	A PWS that is not a CWS. A NCWS is either a “transient non-community water system (TNCWS)” or a “non-transient non-community water system (NTNCWS).”
Non-transient non-community water system (NTNCWS)	A PWS that is not a CWS and that regularly serves at least 25 of the same persons over 6 months per year.
Transient non-community water system (TNCWS)	A NCWS that does not regularly serve at least 25 of the same persons over 6 months per year.

40 CFR 141.2





Definitions (cont.)

Consecutive System	A PWS that buys or otherwise receives some or all of its finished water from one or more wholesale systems.
Routine Monitoring	Normal TC sampling that must be conducted.
Repeat Monitoring	Follow-up sampling required when a compliance sample is TC+ (beyond routine monitoring). Must be used to determine if PWS triggered a Level 1 or Level 2 assessment.

Ground Water

40 CFR 141.2





New Definitions

Clean Compliance History	A record of no TCR or RTCR MCL violations, no TCR or RTCR monitoring violations, & no coliform TT trigger exceedances or TT violations.
Level 1 Assessment	An evaluation conducted by the system (can be either operator or owner) to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, & (when possible) the likely reason that the system triggered the assessment.
Level 2 Assessment	A more detailed evaluation of a system conducted by an individual approved by the state with the same goals as a Level 1 assessment.

40 CFR 141.2





More New Definitions

Sanitary Defect	A defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.
Seasonal System	A NCWS that is not operated as a PWS on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

40 CFR 141.2





MCL vs. TT

- **Maximum Contaminant Level (MCL) = highest allowable concentration of a contaminant**
 - Compliance based on sampling results
- **Treatment Technique (TT) = required process intended to reduce the level of a contaminant in drinking water**
 - Compliance based on performing activities

40 CFR 141.2; 141.52(a)(6) & 141.63(c)



RTCR Applicability

- Like 1989 TCR, RTCR applies to all PWSs
 - Only microbial drinking water regulation that applies to all PWSs
 - GW & SW systems
 - One of the few rules that applies to TNCWSs
 - Any size PWS population

40 CFR 141.851(b)





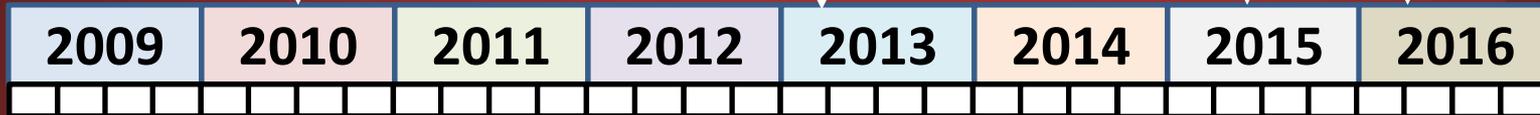
RTCR Timeline

RTCR
Proposed Rule

RTCR
Final Rule

RTCR Primacy
Application

RTCR
Implementation
Effective
April 1, 2016





RTCR Purpose

- Improve public health protection by reducing the pathways through which fecal contamination and pathogens can enter the distribution system
- TCR & RTCR Objectives:
 - Evaluate effectiveness of treatment
 - Determine integrity of distribution system
 - Signal possible presence of microbial contamination
- Cost-effective way to enhance multi-barrier approach to public health protection

RTCR Ground Water



Why Total Coliform & *E. coli*?

- RTCR uses TC & *E. coli* as indicators of potential risk
 - TC are a group of closely related bacteria that, with a few exceptions, are not harmful to humans
 - *E. coli* bacteria are a more accurate indicator of fecal contamination than TC, though not a measure of waterborne pathogen occurrence
- The presence of TC is a good indicator of a potential pathway of microbial contamination into the distribution system
- These contaminants could include:
 - Bacteria
 - Viruses
 - Parasitic protozoa



Types of RTCR Compliance Samples

- Routine samples:
 - Required each monitoring period
- Repeat samples:
 - Required for when a routine or repeat sample is TC+

NOTE: All RTCR compliance samples must be used when determining if a Level 1 and Level 2 assessment is triggered.





Special Purpose Samples

- Special purpose samples are operations-focused investigative samples that are not classified as routine or repeat compliance samples
 - Example: Samples used to determine if disinfection, flushing, storage tank cleaning, etc. is working properly
- The following are not special purpose samples & must be used to determine if a TT trigger exceedance or *E. coli* MCL violation occurred
 - Extra routine samples taken per the sample siting plan
 - Repeat samples

40 CFR 141.853(a)(4) & (b)



Sample Siting Plans





Sample Siting Plan Basics

- **Systems must develop and adhere to a sample siting plan and a system-specific schedule**
 - **Must develop plans no later than March 31, 2016**
- **Sample siting plans are subject to state review & revision**
 - **States should review and determine whether plans prepared by PWSs meet requirements of the RTCR**

40 CFR 141.853(a)





Sample Siting Plan Components

- **Sampling locations**
 - Must be representative of the water in the distribution system
 - Routine & repeat monitoring locations must be shown
 - Must show all applicable GWR monitoring sites
- **Sample collection schedule**
 - Samples must be collected at regular time intervals throughout the month
 - GW systems serving $\leq 4,900$ may collect all samples on a single day if taken from different sites

Ground Water





Sampling Locations

- For GW systems, sample siting plan must include locations for:
 - Routine samples
 - Repeat samples
 - GWR monitoring sites (sampling locations for dual-purpose samples must be noted & approved by state)
- Monitoring may take place at:
 - Customer's premises, OR
 - Dedicated sampling station, OR
 - Other designated compliance sampling location

40 CFR 141.853(a)(1) & (5)



Special Considerations for State Drinking Water Agencies



“Follow-up TC samples” not identified as repeat samples and the sample siting plan:

- Level 1 and Level 2 assessments
- Corrective Actions
- Sampling as part of public health protection when PWS believes that “no sanitary defect identified”

40 CFR 141.853(a)



Routine Monitoring



Number of Routine Samples

- **Systems must collect at least the required number of routine samples**
 - Even if the system has had an *E. coli* MCL violation or has incurred a TT trigger
- **Systems may take extra routine samples for public health protection and increased coverage of the distribution system**
 - Must be taken in accordance with the sample siting plan
 - Must be representative of the distribution system
 - Must be used in determining whether the TT trigger has occurred

40 CFR 141.853(a)(3) & 141.853(a)(4)



Routine Monitoring Frequency GW Serving > 1,000 People

- ALL GW systems serving more than 1,000 people must monitor monthly including:
 - CWS
 - Seasonal NCWS
 - Non-seasonal NCWS
- Systems must collect samples at regular time intervals throughout the month
 - Systems serving 4,900 or fewer people may collect all samples on a single day if taken from different sites

40 CFR 141.853(a)(2) & 141.857(b)



Monthly Routine Sample Table



TOTAL COLIFORM **MONTHLY** MONITORING FREQUENCY FOR GW SYSTEMS

Population served	Min # of Samples/Mo
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9

Ground Water

40 CFR 141.854(c)(1); 141.855(c)(1) & 141.857(b)



Monthly Routine Sample Table



TOTAL COLIFORM MONTHLY MONITORING FREQUENCY FOR GW SYSTEMS	
Population served	Min # of Samples/Mo
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80

40 CFR 141.854(c)(1); 141.855(c)(1) & 141.857(b)



Ground Water

Monthly Routine Sample Table



TOTAL COLIFORM **MONTHLY** MONITORING FREQUENCY FOR GW SYSTEMS

Population served	Min # of Samples/Mo
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300

40 CFR 141.854(c)(1); 141.855(c)(1) & 141.857(b)



Monthly Routine Sample Table



TOTAL COLIFORM **MONTHLY** MONITORING FREQUENCY FOR GW SYSTEMS

Population served	Min # of Samples/Mo
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

40 CFR 141.856(b) & 141.857(b)





Small Systems Taking < 5 Routine Samples per Month

- **For PWSs sampling monthly**, monitoring requirements for systems serving 4,900 or fewer people:

TCR	RTCR
Must take at least 5 routine samples in the month after a TC+ sample.	Systems must only take their usual number of samples the month following a TC+.

40 CFR 141.21(b)(5); 141.856(b) & 141.857(b)





Small Systems Taking < 5 Routine Samples per Month (cont.)

- **For PWSs monitoring monthly**, the month following a TC+, systems serving 4,900 or fewer people must sample at their normal routine sample sites:

TC MONTHLY MONITORING FREQUENCY FOR GW SYSTEMS	
Population served	Min # of Samples/Mo
Up to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5

40 CFR 141.21(b)(5); 141.856(b) & 141.857(b)



Routine Monitoring Frequency GW Serving \leq 1,000 People

- GW systems serving less than or equal to 1,000 people must monitor as follows:
 - CWS: 1 sample per month
 - Seasonal NCWS: 1 sample per month
 - Non-seasonal NCWS: 1 sample per quarter

Any system that has a SW, GWUDI, SW or GWUDI blended source(s) are considered surface water systems for purposes of RTCR total coliform monitoring and must monitor monthly.





Routine Samples & NCWS with Varying Population

- For GW NCWSs serving $\leq 1,000$ in some months & more than 1,000 in other months
 - State may allow system to reduce monitoring during months when it serves $\leq 1,000$
 - System must monitor monthly during months it serves more than 1,000 people
 - State has authority to determine how transition will occur

40 CFR 141.857(d)



Additional Routine Monitoring

Applicable to PWSs NOT monitoring monthly

- For systems monitoring quarterly or annually:
 - System must collect at least 3 routine samples the month following one or more TC+ samples
 - Samples must be:
 - Collected at regular time intervals throughout the month or on a single day if taken from different sites
 - Collected consistent with the sampling siting plan
 - Used to calculate whether the TT trigger has been exceeded or an *E. coli* MCL violation has occurred

40 CFR 141.854(j) & 141.855(f)



Additional Routine Monitoring (cont.)

- States may waive this requirement if:
 - State or state-approved party performs a site visit before the end of the next month
 - State determines what caused the TC+ & that the problem has been fixed
 - State determines that PWS has corrected the problem before PWS takes the required repeat samples, & all repeat samples are TC-

State may not waive requirement solely on grounds that all repeat samples are TC-

40 CFR 141.854(j)(1)-(3); 141.855(f)(1)-(3)



Special Monitoring Evaluations

- Must be conducted for all GWSs serving $\leq 1,000$ with each sanitary survey
- Determines whether the following are appropriate:
 - Monitoring frequency
 - # of samples per monitoring period
 - Vulnerable or critical times/sites for sample collection at seasonal systems
- Ensures that the distribution system is evaluated in sufficient detail

40 CFR 141.854(c)(2) & 141.855(c)(2)



Polling Question #1

Ground Water



Polling Question #1

TRUE or FALSE: If a state requires all PWSs to monitor monthly, without the option to reduce monitoring, then additional routine monitoring is not required.

- A. True**
- B. False**

RTCR
Ground Water



Polling Question #1: Answer

TRUE or FALSE: If a state requires all PWSs to monitor monthly, without the option to reduce monitoring, then additional routine monitoring is not required.

A. True

B. False

- **EXPLANATION:** Only eligible solely GW systems that monitor quarterly or annually are required to conduct 3 routine samples the month following a total coliform-positive result.



Repeat Monitoring



Number of Repeat Samples

- **ALL PWSs of any size now take only 3 repeat samples for each TC+**
- **Small GW systems (serving $\leq 1,000$ people) only take 3 repeat samples**
 - Under TCR, 4 samples required

TCR - # of Repeats	RTCR - # of Repeats
4 Samples	3 Samples

40 CFR 141.858(c)(1)



Follow-up Monitoring for TC+ ROUTINE Sample(s)



Within 24
hours

Site A <-ROUTINE SAMPLE(S)

TC+



Site C

Site A

Site B <- REPEAT SET

TC-

TC-

TC-

- For every routine sample that is TC+:
 - Collect 3 repeat samples
- All TC+ samples must be tested for *E. coli*

Systems must collect a set of repeat samples for EACH routine TC+ sample, even if an MCL or TT exceedance has occurred

Follow-up Monitoring for TC+ REPEAT



Site A TC+



<u>Site C</u> TC+	<u>Site A</u> TC-	<u>Site B</u> TC+
----------------------	----------------------	----------------------



Within 24 hours

<-Repeat
Set 1

<u>Site C</u> TC-	<u>Site A</u> TC+	<u>Site B</u> TC+
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<-Repeat
Set 2

<u>Site C</u> TC-	<u>Site A</u> TC-	<u>Site B</u> TC-
----------------------	----------------------	----------------------

<-Repeat
Set 3

- For each routine TC+ sample, when there are multiple TC+ repeat samples in a set:
 - Collect one set of 3 repeat samples until either:
 - TC are not detected in one complete set of repeats
- OR
- System determines that a TT trigger has been exceeded and notifies the state

In this example, there are a total of 9 repeat samples at 3 sites.

Frequently Asked Question

Does each TC+ routine sample need 3 repeat samples?

ANSWER: Yes, each TC+ routine sample needs 3 repeat samples regardless of whether an assessment has been triggered.

RCR Ground Water



Additional Repeat Samples for PWS Taking < 40 Samples/Month

- If there is a TC+ routine sample, where the Round 1 repeat samples...
 - Have one or more missing repeat samples, then an assessment is triggered;
 - Have one or more TC+ or EC+ repeat samples, then an assessment is triggered

NOTE: for both of these events, once an assessment is triggered additional repeat samples are not required, unless specified by the State as part of the corrective actions.

40 CFR 141.859(a)(1)(ii)





Repeat Sample Locations

- PWS can collect repeat samples using the same procedure as in the TCR
 - 1 at original location
 - 1 within 5 service connections upstream
 - 1 within 5 service connects downstream

OR

- PWS can specify in their sample siting plan either fixed alternative locations or criteria for selecting sites on a situational basis via a standard operating procedure

40 CFR 141.853(c)(5)



Repeat Sample Locations (cont.)



- Systems can propose different repeat monitoring locations to the state as long as they are representative of a pathway for contamination of the distribution system

RTCR Ground Water

40 CFR 141.853(a)(5)(i) & (a)(6)



Polling Question #2

GROUND
Water



Polling Question #2

At which of the following locations will your state require of your water systems for repeat monitoring?

- A. 1 at the original location, 1 within 5 service locations upstream, 1 within 5 service locations downstream
- B. Alternative locations identified by the system on a situational basis based on specific criteria
- C. Allow both of the above options
- D. Undecided



Polling Question #2: Answer

At which of the following locations will your state require of your water systems for repeat monitoring?

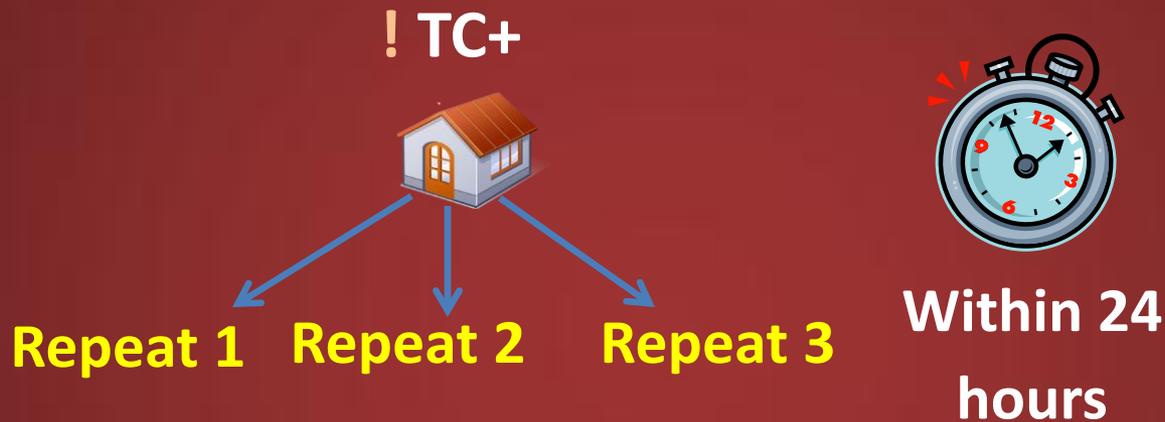
- A. 1 at the original location, 1 within 5 service locations upstream, 1 within 5 service locations downstream
- B. Alternative locations identified by the system on a situational basis based on specific criteria
- C. Allow both of the above options

States have discretion to allow both options A and B





Repeat Monitoring Deadline



- System has 24 hours after learning about TC+ routine sample to take repeat samples
- State may extend the 24-hour deadline (new deadline must be specified)

40 CFR 141.858(a)(1)





Repeat Monitoring Timing

- **Must collect all repeats on same day**
 - 3 repeat samples are needed for each TC+ routine sample
- **State may allow systems with single service connection to:**
 - Collect over a 3-day period
 - Collect a larger volume container(s) of any size as long as the total volume collected is at least 300mL



40 CFR 141.858(a)(1) & (2)





Repeat Monitoring Scenario

- A routine sample is collected
- Before that first sample is analyzed, another routine sample is taken within 5 service connections
- The first sample is TC+
- The second routine can be counted as a repeat (instead of being counted as a routine sample)
- System needs to take another routine sample

First Routine Sample

TC+



2nd Routine
Sample

1st Repeat
Sample

40 CFR 141.858(c)(4)



Disinfectant Residual Samples

- Under the Disinfection Byproduct Rules:
 - Must monitor disinfectant residuals at same time and place as total coliforms are sampled
- Monitoring necessary to demonstrate compliance with chlorine / chloramine Maximum Residual Disinfectant Levels (MRDLs)

40 CFR 141.132(c)(1)(i)



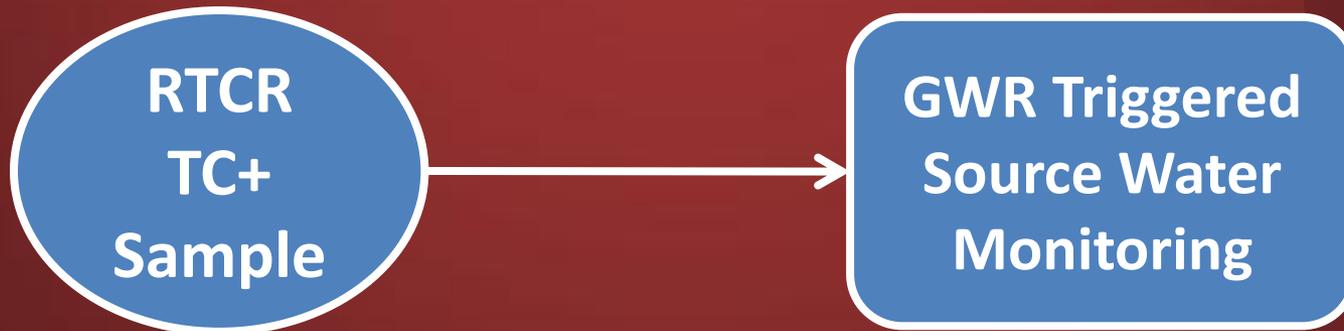
RTCR Monitoring and the Ground Water Rule (GWR)

Ground Water



RTCR & GWR

- A GW system must conduct triggered source water monitoring under the GWR if a routine sample collected under the RTCR is TC+, unless:
 - It combines all of its GW with SW/GWUDI water prior to treatment, OR
 - Already provides 4-log treatment of viruses



40 CFR 141.402(a)(1) & (a)(1)(I) & (b)(1)



GWR Triggered Source Water Monitoring

- **GW systems that do not provide 4-log treatment of viruses with a TC+ RTCR routine sample:**
 - **Must collect at least 1 sample from each source in use at the time the TC+ sample was taken**
 - **Within 24 hours of being notified of TC+ sample**
 - **Must be analyzed for the state approved fecal indicator**
 - **If source sample is FC+, system must collect 5 additional source water samples from that source**
 - **Within 24 hours of being notified of the FC+ sample**
 - **Unless state requires immediate corrective action in response to positive source water sample**

40 CFR 141.402(a)(2)-(3)



Dual Purpose Samples: Repeat RTCR and the GWR Source Samples



Dual Purpose Sample – RTCR Repeat Sample at GWR Location

- States may allow systems to take one of the required RTCR repeat sample at the triggered source water monitoring location to meet requirements of BOTH GWR and RTCR
- Applies to systems that:
 - Serve $\leq 1,000$ people
 - Use a single GW well
 - Are required to conduct triggered source water monitoring under the GWR
 - Use *E. coli* as a fecal indicator for source water monitoring, as approved by the state

40 CFR 141.402(a)(2)(iv)



Dual Purpose Samples – Requirements

- **GW systems with one well serving < 1,000 people wishing to take dual purpose samples**
 - **Must demonstrate sample siting plan remains representative of distribution system water quality**
 - **State provides written approval of use of single sample to meet both rules**
 - **Must take other required repeat samples at locations specified in the RTCR**
 - **Must take triggered source water sample at source prior to treatment**

40 CFR 141.853(a)(5)(ii)



E. coli-Positive Dual Purpose Samples

- EC+ dual purpose samples taken at the source result in:
 - RTCR *E. coli* MCL violation
 - Additional GWR requirements (corrective action, additional monitoring)
- If a PWS takes more than one dual-purpose (RTCR repeat) sample at the source, they may reduce the sample number of GWR additional source water samples required by the number of dual-purpose samples that were not *E. coli*-positive
 - NOTE: The language in the regulation says “repeat” samples. But this is qualified by noting it is a repeat sample taken at the triggered source water monitoring location; hence a dual-purpose sample [141.852(b)(ii)(A)]

40 CFR 141.860(a) & 141.402(a)



Polling Question #3

Ground Water



Polling Question #3

To be eligible for dual-purpose GWR-triggered source water and repeat RTCR monitoring, which requirements must be met? (Select all that apply)

- A. Serves $\leq 1,000$ people
- B. Single well
- C. GW only (not SW or SW/GWUDI blended source)
- D. Approved by the state in the sample plan



Polling Question #3: Answer

To be eligible for dual-purpose GWR triggered source water and repeat RTCR monitoring, which requirements must be met? (Select all that apply)

- A. Serves $\leq 1,000$ people
- B. Single well
- C. Ground water only (not blended with surface or GWUDI water)
- D. Approved by the state in the sample plan



Polling Question #4

Ground Water



Polling Question #4

For systems with a single well, does your state anticipate allowing dual purpose samples for GWR-triggered source water monitoring and repeat RTCR monitoring?

- A. Yes
- B. No
- C. Undecided

RTCR Ground Water



RTCR: Reduced and Increased Monitoring Frequency





Reduced Monitoring Requirements

- If allowed by the state, GW systems serving $\leq 1,000$ people can go to reduced monitoring
- Systems may maintain their TCR frequency when transitioning to RTCR if they meet specified criteria
- Stricter requirements under RTCR
 - Systems must demonstrate clean compliance history and meet other requirements to qualify for reduced monitoring

40 CFR 141.854(e) & 141.855(d)



Monitoring Frequency – GW PWSs Serving ≤ 1,000 People



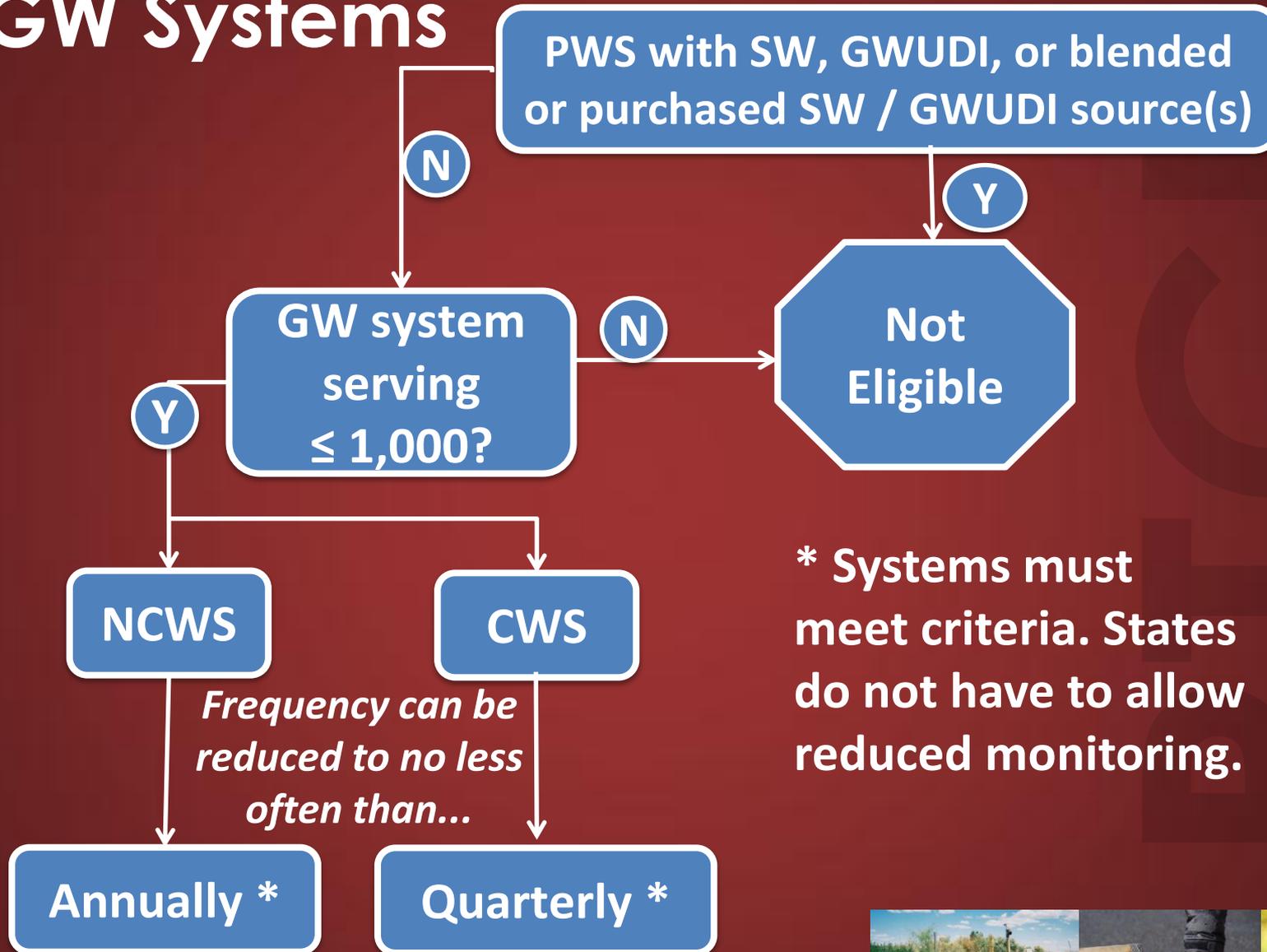
System Type	Increased	Baseline	Reduced	Transition to the RTCR
CWS	NA	1 / month	1 / quarter	Same frequency under the TCR
Non-Seasonal NCWS	1 / month	1 / quarter	1 / year	Same frequency under the TCR For annual – site visit or voluntary Level 2 assessment in 1 st & subsequent years
Seasonal NCWS	NA	1 / month	1 / quarter or 1 / year	For quarterly – identify vulnerable period for monitoring For annual – identify vulnerable period for monitoring & site visit or voluntary Level 2 assessment in 1 st & subsequent years

Transition to the RTCR – GW Systems Serving $\leq 1,000$ People

- Systems continue on their TCR monitoring schedule that is in effect on March 31, 2016
- NCWSs and CWSs on reduced monitoring remain on that schedule unless they:
 - Trigger more frequent monitoring, OR
 - Are otherwise directed by the state
- NCWSs on annual monitoring must have an annual site visit or voluntary Level 2 assessment beginning no later than 2017 to remain on annual monitoring
- State must perform a special monitoring evaluation during each sanitary survey to determine if the monitoring schedule is appropriate



Eligibility for Reduced Monitoring – GW Systems



40 CFR 141.854(e) & 141.855(d)(1)



Clean Compliance History

- Eligible systems must have clean compliance history for a minimum of 12 consecutive months to qualify for reduced monitoring
- A water system has a clean compliance history when it meets ALL of the following:
 - A record of no TCR or RTCR MCL violations, and
 - No TCR or RTCR monitoring violations, and
 - No coliform TT trigger exceedances or TT violations

40 CFR 141.2 & 141.855(d)(1)(i)



Monitoring Frequency – GW CWS Serving $\leq 1,000$ People



System Type	Increased	Baseline	Reduced	Transition to the RTCR
CWS	NA	1 / month	1 / quarter	Same frequency under the TCR
Non-Seasonal NCWS				
Seasonal NCWS				

Reduced Monitoring – GW CWS ≤ 1,000

- State can reduce to no less than 1 sample/quarter if all of the following:
 - In compliance with certified operator provisions
 - A clean compliance history for at least 12 months
 - Free of sanitary defects (last sanitary survey) or on approved plan and schedule
 - A protected source meets construction standards
 - At least one of the following:
 - Annual site visit or Level 2 assessment
 - Cross connection control as approved by state
 - Meets disinfection criteria (distribution system or virus removal/inactivation as specified in GWR)
 - Other equivalent enhancements

40 CFR 141.854(h)



Return to Routine Monthly Monitoring – GW CWS Serving $\leq 1,000$ People

- Increases from quarterly to baseline monthly monitoring the month following any of these events:
 - Triggered Level 2 assessment or a 2nd Level 1 assessment in a rolling 12 months
 - *E. coli* MCL violation
 - Coliform TT violation
 - Two RTCR monitoring violations in a rolling 12 months
 - System loses its certified operator

40 CFR 141.854(f)



Polling Question #5

GROUND
Water



Polling Question #5

TRUE or FALSE: To be eligible for reduced monitoring, GW CWSs serving 1,000 or fewer people are required to be in compliance with state certified operator provisions (even if the water system is not required to disinfect)?

- A. True
- B. False



Polling Question #5: Answer

TRUE or FALSE: To be eligible for reduced monitoring, GW CWSs serving 1,000 or fewer people are required to be in compliance with state certified operator provisions (even if the water system is not required to disinfect).

A. True

B. False

NOTE: A system that loses its certified operator must return to monthly monitoring in the month following that loss.



Polling Question #6

2014
Ground Water



Polling Question #6

Does your state anticipate allowing quarterly monitoring for GW CWSs serving 1,000 or fewer people that meet the reduced monitoring criteria?

- A. Yes
- B. No
- C. Undecided

RTCR Ground Water



Monitoring Frequency – GW non-seasonal NCWS Serving $\leq 1,000$ People



System Type	Increased	Baseline	Reduced	Transition to the RTCR
CWS				
Non-Seasonal NCWS	1 / month	1 / quarter	1 / year	Same frequency under the TCR For annual – site visit or voluntary Level 2 assessment in 1 st & subsequent years
Seasonal NCWS				

Reduced Monitoring – GW non-seasonal NCWS $\leq 1,000$

- State can reduce to 1 sample per year if the following criteria are met:
 - An annual site visit by the state or an annual voluntary Level 2 assessment (before the first reduction, annually thereafter)
 - A clean compliance history for at least the last 12 months
 - Free of sanitary defects (most recent sanitary survey)
 - A protected source and meets construction standards

40 CFR 141.854(e)



Increased Monitoring – GW non-seasonal NCWS Serving $\leq 1,000$ People

- Increases from annual to quarterly monitoring the quarter after the system has one RTCR monitoring violation
- Increases from quarterly or annual to monthly monitoring the month following any of these events:
 - Triggered Level 2 assessment or a 2nd Level 1 assessment in a rolling 12 months
 - *E. coli* MCL violation
 - Coliform TT violation
 - For a system on quarterly monitoring, two RTCR monitoring violations, or one RTCR monitoring violation and one Level 1 assessment, in a rolling 12 months

40 CFR 141.854(f)



Special Provisions for TNCWS

- For TNCWSs on quarterly or monthly monitoring, the state may elect not to count monitoring violations to determine eligibility for qualifying or remaining on reduced monitoring if the system collects the missed sample **before** the end of the next monitoring period (quarterly or monthly).
- TNCWSs would still incur a monitoring violation.

40 CFR 141.854(c)(4)



Return to Quarterly Monitoring – GW non-seasonal NCWS Serving $\leq 1,000$ People

- The state may reduce the increased monthly monitoring to quarterly if:
 - Within the last 12 months, the system has a completed sanitary survey or site visit by the state or voluntary Level 2 assessment by a party approved by the state;
 - Is free of sanitary defects;
 - Has a protected source; AND,
 - Has a clean compliance history for a minimum of 12 months

40 CFR 141.854(g)



Return to Annual Monitoring – GW NCWS Serving $\leq 1,000$ People

- The state may reduce the increased monthly monitoring to annual if the system:
 - Meets the criteria for returning to quarterly monitoring (see previous slide)
 - Has an annual site visit or voluntary Level 2 assessment
 - Corrects all identified sanitary defects
 - Has at least one additional enhancement:
 - Cross-connection control
 - Certified operator or regular visits by a certified circuit rider
 - Meets all disinfection standards
 - Other equivalent enhancements

40 CFR 141.854(h)



Polling Question #7

Ground Water



Polling Question #7

Does your state anticipate allowing annual monitoring for GW NCWSs serving 1,000 or fewer people that meet the reduced monitoring criteria?

- A. Yes
- B. No
- C. Undecided

RTCR
Ground Water



Seasonal System Requirements





Seasonal Systems

- A seasonal system is a NCWS, not operated as a PWS on a year-round basis, that starts up/shuts down at the beginning & end of each operating season
- State may exempt seasonal systems from requirements for seasonal systems if the distribution system remains pressurized during the entire period that the system is not operating, except that systems monitoring less frequently than monthly must still monitor during the designated and approved vulnerable period

40 CFR 141.2; 40 CFR 141.854(i)(3); 40 CFR 141.856(a)(4) & 141.857(a)(4)



Requirements for Seasonal Systems with a GW Source

- Must follow a state-approved start-up procedure prior to serving water to the public
- Must monitor monthly for all months they are in operation, unless it transitions into quarterly or annual and/or meets reduced monitoring criteria (seasonal GW Systems \leq 1,000 people)
- If monitoring less than monthly, the system must sample during high vulnerability periods as designated in their approved sample siting plan

40 CFR 141.854(i)(2); 40 CFR 141.856(a)(4) & 141.857(a)(4)





Seasonal Systems - Transition

- Seasonal systems on quarterly or annual monitoring on March 31, 2016 can transition to the RTCR with their current frequency on April 1, 2016 unless they trigger increased monitoring on or after April 1, 2016, or are otherwise directed by the State
- Seasonal systems that transition onto quarterly or annual monitoring must have a sample siting plan approved before April 1, 2016 that designates the time period for monitoring

40 CFR 141.854(c) and (i)



Monitoring Frequency – GW PWSs Serving ≤ 1,000 People



System Type	Increased	Baseline	Reduced	Transition to the RTCR
CWS				
Non-Seasonal NCWS				
Seasonal NCWS	NA	1 / month	1 / quarter or 1 / year	<p>For quarterly – identify vulnerable period for monitoring</p> <p>For annual – identify vulnerable period for monitoring & site visit or voluntary Level 2 assessment in 1st & subsequent years</p>



Reduced Monitoring Criteria - Seasonal GW Systems \leq 1,000 people

Monthly to Quarterly

Approved sample siting plan that designates the time period for monitoring

- **Monitors during highest vulnerability period or highest demand or other time period based on site-specific conditions**

Within last 12 months, have site visit by state or sanitary survey or voluntary Level 2 assessment

Free of sanitary defects or corrected all sanitary defects

Protected water source

Clean compliance history for a minimum of 12 months

40 CFR 141.854(g) & 141.854(i)(2)(i)



Clean Compliance History: Seasonal Systems

- Clean compliance history for seasonal systems includes
 - A record of no TCR or RTCR MCL violations, and
 - No TCR or RTCR monitoring violations, and
 - No coliform TT trigger exceedances or TT violations
 - No TT violations for failure to complete state approved start-up procedure
- Systems must have clean compliance history for a minimum of 12 consecutive months

40 CFR 141.2 & 141.855(d)(1)(i)



Reduced Monitoring Criteria - Seasonal GW Systems \leq 1,000 people



Monthly/Quarterly to Annually

All criteria for reduced monitoring from monthly to quarterly

Has an annual site visit by the state and corrects all identified sanitary defects or substitutes a voluntary Level 2 assessment by a party approved by the state

One of the following additional barriers to contamination:

- **Cross connection control program**
- **Certified operator provisions**
- **Continuous disinfection entering distribution and residual in distribution in accordance with criteria specified by state**
- **4-log demonstration of removal or inactivation of viruses under 40 CFR 141.403(b)(3)**
- **Other equivalent enhancements approved by the state**

40 CFR 141.854(h) & 141.854(i)(2)



Increased Monitoring – Seasonal GW NCWS Serving $\leq 1,000$ People

- Increases from annual to quarterly the quarter after the system has one RTCR monitoring violation
- Increases from quarterly or annual to monthly the month following any of these events:
 - Triggered Level 2 assessment or a 2nd Level 1 assessment in a rolling 12 months
 - *E. coli* MCL violation
 - Coliform TT violation, including failure to complete a state-approved start-up procedure
 - Two RTCR monitoring violations, or one RTCR monitoring violation and one Level 1 assessment, in a rolling 12 months, for a system on quarterly monitoring

40 CFR 141.854(f) and 141.860(b)(2)





Start-up Procedures

- Beginning April 1, 2016, all seasonal systems must demonstrate completion of a state-approved startup procedure before serving water to the public
- States have the flexibility to determine what start-up procedures are appropriate for a particular system based on site-specific considerations
- States may require one or more TC samples as part of the required start-up procedures

40 CFR 142.16(q)(2)(vii); 141.856(a)(4)(i);
141.857(a)(4)



Seasonal System Violations

- **TT violations**
 - Failure to complete state-approved start-up procedures prior to serving water to the public
- **Reporting violations**
 - Failure to submit certification of completion of start-up procedures

40 CFR 141.860(b)(2) & (d)(3), 142.16(q)(2)(vii)



Primacy Considerations: Seasonal Systems

State must describe how it will:

- 1) identify seasonal systems,
- 2) determine when systems monitoring less than monthly must monitor,
- 3) start up procedures must be completed

40 CFR 141.860(b)(2) & (d)(3), 142.16(q)(2)(vii)



Polling Question #8

GROUND
Water



Polling Question #8

TRUE OR FALSE: Failure by a non-community seasonal system to complete state-approved start-up procedures prior to serving water to the public is a TT violation.

- A. True
- B. False

RTCR
Ground Water



Polling Question #8: Answer

TRUE OR FALSE: Failure by a non-community seasonal system to complete state-approved start-up procedures prior to serving water to the public is a TT violation.

A. True

B. False



Polling Question #9

GROUNDWATER



Polling Question #9

Which of the following is your state considering as requirements for seasonal systems' start-up procedures? (Select all that apply):

- A. Disinfection and Flushing
- B. Sampling for total coliform/*E. coli*
- C. Minimum disinfectant residual in distribution system
- D. Site visit by state or state-approved third party
- E. Verification that any current or historical sanitary defects from previous operational period have been corrected

RC Ground Water



Polling Question #9: Answer

Which of the following is your state considering as requirements for seasonal systems' start-up procedures? (Select all that apply):

- A. Disinfection and Flushing
- B. Sampling for total coliform/*E. coli*
- C. Minimum disinfectant residual in distribution system
- D. Site visit by state or state-approved third party
- E. Verification that any current or historical sanitary defects from previous operational period have been corrected

States have discretion to allow any combination of these procedures or additional procedures not listed here.



Analyzing Samples

GROUND WATER





Analyzing for TC vs. *E. coli*

- All TC+ routine or repeat samples must be tested for *E. coli*
- State can allow a system to forgo *E. coli* testing on a TC+ sample if the system assumes the sample is EC+
 - Case-by-case basis
 - EC+ assumption must still be reported to the state
 - System incurs an *E. coli* MCL violation, is required to conduct a Level 2 assessment, and comply with PN/CCR requirements

40 CFR 141.858(b)





Certified Laboratories

- Samples must be analyzed by an EPA- or state-certified drinking water lab
- Labs must be certified for each method used for analysis & each contaminant analyzed

RT&R Ground Water

40 CFR 141.852(b)





Analytical Requirements

- Standard sample volume required for analysis = 100 mL
 - Regardless of analytical method
- Only determining presence or absence of total coliform & *E. coli* is required
- The time from sample collection to initiation of test medium incubation may not exceed 30 hours
- If residual chlorine present, sodium thiosulfate must be added to neutralize the chlorine

40 CFR 141.852(a)(1)-(3)



Total Coliform Analytical Methods

Methodology Category	Methods
Lactose Fermentation Methods	<ul style="list-style-type: none"> • Standard Methods 9221B - Standard Total Coliform Fermentation Technique • Standard Methods 9221D - Presence-Absence (P–A) Coliform Test
Membrane Filtration Methods	<ul style="list-style-type: none"> • Standard Methods 9222B – Standard Total Coliform Membrane Filter Procedure • MI medium • m-ColiBlue24[®] Test • Chromocult
Enzyme Substrate Methods	<ul style="list-style-type: none"> • Colilert[®] • Colisure[®] • E*Colite[®] Test • ReadyCult[®] Test • Modified Colitag[®] Test

40 CFR 141.852(c)(5)



E. coli Analytical Methods

Methodology Category	Methods
<i>Escherichia coli</i> Procedure (following Lactose Fermentation Methods)	<ul style="list-style-type: none"> • Standard Methods 9221 F - EC–MUG medium
<i>Escherichia coli</i> Partition Method	<ul style="list-style-type: none"> • Standard Methods 9222G - EC broth with MUG (EC–MUG) • Standard Methods 9222G - NA–MUG medium
Membrane Filtration Methods	<ul style="list-style-type: none"> • MI medium • m-ColiBlue24[®] Test • Chromocult
Enzyme Substrate Methods	<ul style="list-style-type: none"> • Colilert[®] • Colisure[®] • E*Colite[®] Test • ReadyCult[®] Test • Modified Colitag[®] Test

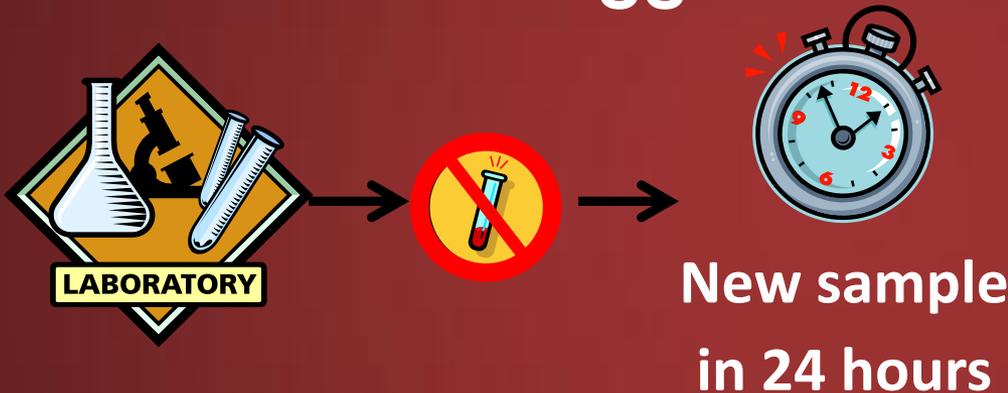
40 CFR 141.852(c)(5)





Invalidation of Samples

- Invalidated samples cannot be used to determine if the system had an *E. coli* MCL violation or TT trigger



- Re-samples must be taken at same locations and used for compliance calculations

Documentation of Sample Invalidation

- ✓ Rationale for invalidation
- ✓ Cause of TC+
- ✓ Action to correct problem

State Signature

40 CFR 141.853(c)



Invalidation of Samples (cont.)



- State may invalidate a sample if:
 - Lab establishes that improper sample analysis caused the TC+
 - State determines from repeat sample results that the TC+ was caused by domestic or other non-distribution system plumbing problem
 - State finds that the TC+ is a result of something that does not reflect water quality in the distribution system

Systems must collect replacement samples for all invalidated samples!

40 CFR 141.853(c)(1)



Polling Question #10

Ground Water



Polling Question #10

Does your state have an after-hours phone line or alternative notification procedure for systems to use if they become aware of an *E. coli* MCL violation or EC+ sample after the state office is closed?

- A. Yes
- B. No

RT&R Ground Water



Special Considerations for State Drinking Water Agencies



- Things to Consider:
 - EC+ results can trigger time sensitive follow-up action for the State
 - Level 1 or Level 2 assessment within 30 days based on sample results

RTCR
Ground Water



Assessments

GROUND
Water



Purpose of Assessments

- All systems required to conduct assessment when monitoring results show that the system may be vulnerable to contamination
- An assessment is an evaluation to identify sanitary defects & TT triggers
- More proactive approach to public health protection compared to TCR
 - Conditions that defined a non-acute MCL violation under TCR are now used to trigger an assessment

40 CFR 141.859(a)-(b)



Sanitary Defects

- Sanitary defect is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place
 - Holes in storage tanks
 - Breaks in pipes
 - Cracks in well seals or casings
- Not linked directly to significant deficiencies under the GWR, but may overlap
- The system should consult with the state regarding how to coordinate actions under the GWR and RTCR, as necessary

40 CFR 141.2



Elements of Assessments

- At a minimum, assessment must include review & identification of the following elements:
 - Atypical events that may affect distributed water quality or indicate that distributed water quality was impaired
 - Changes in distribution system maintenance & operation that may affect distributed water quality, including water storage
 - Source & treatment considerations that bear on distributed water quality
 - Existing water quality monitoring data
 - Inadequacies in sample sites, sampling protocol, & sample processing

40 CFR 141.859(b)(2)



Conducting Assessments

- **Must be conducted:**
 - Consistent with state directives
 - As soon as practical after the system learns it has triggered an assessment
- **A completed assessment form must be submitted to state within 30 days after system learned it triggered assessment**
- **Assessment form must include:**
 - Assessments conducted
 - All sanitary defects found (if any)
 - Corrective action(s) completed and/or proposed timetable for correction actions not yet completed
- **Failure to conduct an assessment or correct sanitary defects identified is a TT violation and requires Tier 2 PN**

40 CFR 141.859(b)(3)-(4); 141.860(b)(1)



Level of Effort – Level 1 vs. Level 2

- **Level 1:**
 - Conducted by the PWS
 - Primarily completed using existing data
 - May include limited inspections or interviews
- **Level 2:**
 - More comprehensive review of existing data
 - May include field investigations, additional sampling, and inspections
 - May involve consultation with additional parties
 - Assessment must be conducted by the state or party approved by the state



Level 1 Assessments

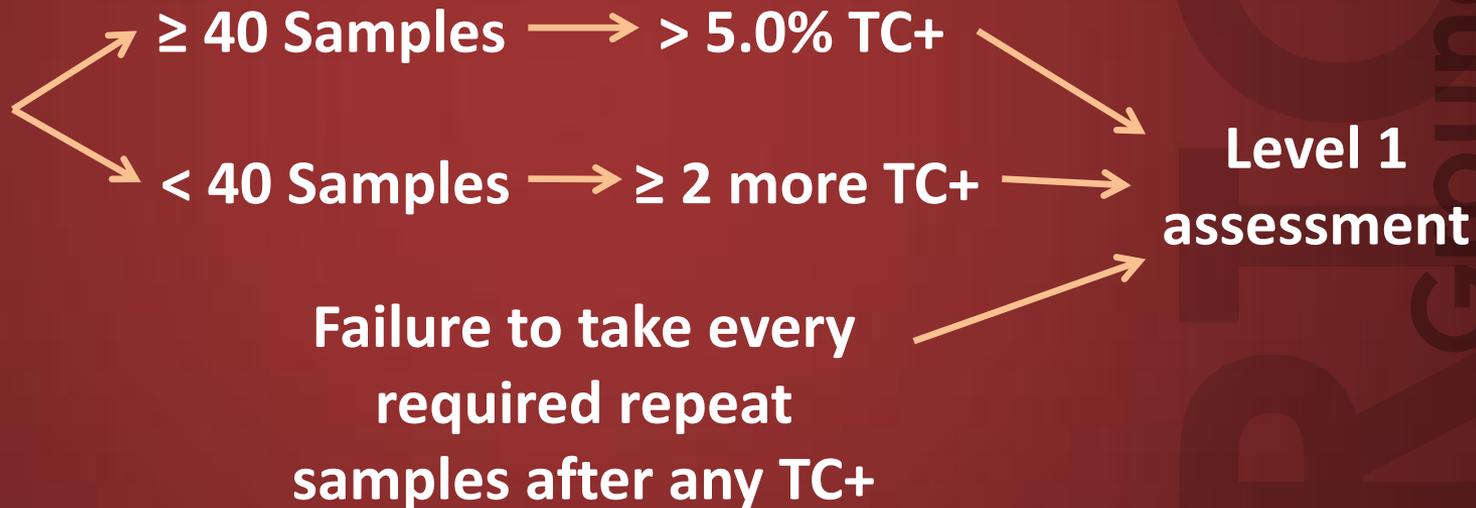


Level 1 Assessment Triggers

Must consider all compliance samples (the total number of routine and repeat samples) to determine Level 1 assessment trigger



Within 1 month



40 CFR 141.859(c)(1)





Who Conducts Level 1 Assessments?

- Intended to be self-assessments
- Systems may receive assistance from states
 - PWS may conduct assessment while consulting with state via phone
 - State may fill out assessment form during phone consultation with PWS
 - Either the PWS or state can at any time consult with the other party to discuss the assessment or corrective action(s)
 - States may set up alternative methods for form submission

Ground Water



Special Considerations for State Drinking Water Agencies



- Things to Consider:
 - Create State regulations to specify qualifications and experience of Level 1 Assessors
 - Updating Operator Certification requirements as part of Level 1 Assessor's criteria
- Reference Materials for Public Water Systems:
 - EPA's Small Water System Resource: Hiring or Contracting a Licensed/Certified Water Operator
 - EPA's From MOS to JOB: Applying Military Occupational Specialties to Civilian Drinking Water and Waste Water Operations



Completed Level 1 Assessment Form Components

- **Must include:**
 - Sanitary defect(s) identified
 - Assessment form may note that no sanitary defects were identified, if applicable
 - Corrective actions taken
 - Proposed timetable for corrective actions not yet completed

40 CFR 141.859(b)





Submission & Review



**Submit completed Level 1
assessment form to state**

**Within 30 days of
learning that trigger
has been exceeded**

- **State will review assessment to determine if:**
 - **System identified likely cause of Level 1 trigger**
 - **System corrected the problem or has an acceptable schedule for correction**

40 CFR 141.859(b)(3)(iii)



Special Considerations for State Drinking Water Agencies



What are other ways my State can continue to address issues with failure to collect repeat samples?

Things to Consider:

- Require follow-up samples as part of the Level 1 or Level 2 assessment process
- NOTE: failure to collect repeat samples automatically triggers a Level 1 or Level 2 assessment



Adama PWS

Case Scenario 1





Adama PWS - Profile

- CWS
- Ground Water only; 2 wells
- Disinfects (<4 log)
- Serves 1100 persons
- Monitors monthly for Total Coliform
- 2 samples / month required
- Applicable to GWR triggered source water monitoring

RTCG
Ground Water



Adama PWS – Case Scenario 1



April 2016

Routine Sample Results:

Site A: TC+

Site B: TC+

How many total repeat samples are required? How many routine samples will be required next month?

RCR
Ground Water



Adama PWS – Case Scenario 1



Routine Sample Results for 4/14/2016:

Site A: TC+

Site B: TC+

A total of 6 repeat samples are required for 4/16/2016 at the following locations:

Site A, upstream Site A, and downstream Site A

Site B, upstream Site B, and downstream Site B

RCB Ground Water



Adama PWS – Case Scenario 1



The PWS is required to take its normal 2 routine samples because PWS is on monthly monitoring.

RTIC Ground Water



Adama PWS – Case Scenario 1



Routine Sample Results for 4/14/2016:

Site A: TC+

Site B: TC+

On 5/11/2016, the State finds out that Adama PWS did not take any repeat samples nor GWR triggered source water samples for the routine total coliform positives in April.

RCR
Ground Water



Adama PWS – Case Scenario 1



But WAIT!

I never knew, says PWS.

5/11/2016

RTCR
Ground Water



Adama PWS – Case Scenario 1



I didn't take any other samples in April.

Hey, I did take samples yesterday on 5/10/2016, 2 routine samples TC – for Site A and Site B.

Adama PWS, “Am I in violation? What for? The lab never told me” My 5/10/2016 samples were fine.

What are the State's next steps?



Adama PWS – Case Scenario 1



STATE RESPONSE

OPTION 1:

- Level 1 assessment
 - Source water monitoring at each of the two wells
- GWR triggered source water monitoring violation
- Modify PWS, lab, State communication SOP
- Assessment is due within 30 days from 05/11/2016.



Adama PWS – Case Scenario 1



STATE RESPONSE

ALL answers in back of handout: But you may want to add this note ...

OPTION 2:

- Treatment Technique Trigger Violation for failure to conduct timely Level 1 assessment which was due within 30 days from 04/16/2016 (the day the repeat sample was required)
- GWR triggered source water monitoring violation
- Return to compliance when assessment is conducted



Ground Water



Level 2 Assessments



Level 2 Assessment Triggers

- Considering all compliance samples (routine and repeat) a system:
 - Has a second Level 1 trigger within a rolling 12-month period
 - Unless the state has determined a likely reason that the samples that caused the first Level 1 TT trigger were total coliform-positive and has established that the system has corrected the problem
 - An *E. coli* violation
 - On approved annual monitoring exceeds a Level 1 trigger in two consecutive years



***E. coli* MCL Violation: Level 2 Assessment Trigger**

A PWS is in violation of the *E. coli* MCL when any of these conditions occur:

<i>E. coli</i> MCL Violation Occurs with Any of These Sampling Result Combinations	
ROUTINE	REPEAT
EC+	TC+
EC+	Any missing repeat sample
TC+	EC+
TC+	TC+ (but no <i>E. coli</i> analyzed)

40 CFR 141.860(a)



Who Conducts Level 2 Assessments?



- **Must be conducted by state-approved party**
 - The state
 - A third party approved by the state, including PWS staff, if qualified
- **Must follow state directives related to:**
 - Size & type of system
 - Size, type, & characteristics of distribution system

40 CFR 141.859(b)(2); 141.859(b)(4)(i)-(ii)



Special Considerations for State Drinking Water Agencies



- Things to Consider about state approved third party for Level 2 assessments
 - Conflict of interest,
 - Legal ramifications,
 - Cultural norms
- Using state approved third party to track and follow-up on corrective actions
- Create state regulations to specify qualifications and experience of Level 2 Assessors





Completed Level 2 Assessment Form Components

- Level 2 assessment elements contain the same elements as the Level 1, but each element is investigated in greater detail
- Must include:
 - Sanitary defect(s) identified
 - Assessment form may note that no sanitary defects were identified, if applicable
 - Corrective actions taken
 - Proposed timetable for corrective actions not yet completed

40 CFR 141.859(b)(4)(i)



Submission & Review



Submit complete Level 2
assessment form to the
state

Within 30 days of
learning that trigger
has been exceeded

- State will review assessment to determine if:
 - System identified likely cause of Level 2 trigger
 - System corrected the problem or has an acceptable schedule for correction

40 CFR 141.859(b)(4)(iv)



Polling Question #11



Polling Question #11

Does your state plan on approving GW systems to conduct their own Level 2 assessments?

- A. Yes
- B. No
- C. Undecided

States have discretion to allow water systems to conduct their own Level 2 assessment.



Special Considerations for State Drinking Water Agencies



What if a PWS conducts the required assessment, and does not identify any sanitary defects?

Things to Consider:

- Best practices procedures such as flushing and disinfection as part of consultation and corrective actions procedures
- Special purpose samples



Adama PWS

Case Scenario 2

The story continues...

HINT: Remember to look at Case 1 if you missed it or forgot!



Adama PWS – Case Scenario 2



Routine Sample Results 08/18/2016:

Site A: TC –

Site B: **TC+**

Repeat Sample Results 08/18/2016:

Site B (501 Elf St): **TC+**

Site B upstream (FM 1092 and Hunter St) : TC –

Site B downstream (6767 Lost Ln) : **TC+**

RTCG
Ground Water



Adama PWS – Case Scenario 2



BUT WAIT!

What's right? Where are the repeats to the repeat TC+?

Help me out because I need to learn this right for the 3 other PWSs that I also operate.



Adama PWS – Case Scenario 2



Repeat Sample Results 08/18/2016:

Site B (501 Elf St): **TC+**

Site B upstream (FM 1092 and Hunter St) : TC –

Site B downstream (6767 Lost Ln) : **TC+**

RTCR
Ground Water





Adama PWS – Case Scenario 2

Which is correct for my repeats to a TC+ repeat ... ?

This set of 3 samples:

Site B

Site B upstream

Site B downstream

501 Elf St

FM 1092 & Hunter St

6767 Lost Ln

or is it this other set of 6 samples...???

501 Elf St, 1 Nicklaus St (upstream of Elf St site),

588 Rudolf Rd (downstream of Elf St)

6767 Lost Ln (original site), 900 Eastern Sea (upstream of Lost Ln site), 22 Compass Rd (downstream of Lost Ln site)



Adama PWS – Case Scenario 2

STATE RESPONSE



SHORT ANSWER:

No additional repeat samples beyond round 1 repeat samples are needed because of the assessment trigger.

RTCR
Ground Water



Adama PWS – Case Scenario 2



STATE RESPONSE

Adama PWS triggered an assessment, because more than 1 sample was TC+ in the month (1 routine TC+ and 2 repeat TC+ = 3 samples TC+) for a PWS that collected less than 40 samples per month.

- A Level 2 is triggered because this is the second Level 1 trigger within 12 months. (A Level 1 trigger happened in April 2016).



Adama PWS – Case Scenario 2



STATE RESPONSE

LONG ANSWER:

Whenever any repeats are TC+ in a set, **take repeats at all of the same sites in the repeat sample set** (assuming a Level 1 or Level 2 assessment has not triggered)

In this case, had there not been a Level 1 or Level 2 trigger, then this set is correct when one or more repeat samples in a repeat set are TC+...

501 Elf St

FM 1092 and Hunter St

6767 Lost Ln



Corrective Actions Associated with Level 1 and Level 2 Assessments



Timing of Corrective Action

- System must complete corrective action:
 - By the time assessment form is submitted, which is within 30 days of the trigger
- OR
- Within state-approved timeframe
- System must notify the state when each scheduled corrective action is completed
- Either system or state can at any time request a consultation with the other party to discuss the corrective action

40 CFR 141.859(c)-(d)



Common Corrective Actions

- Well maintenance/repair
- Disinfection
- Flushing
- Replacement/repair of distribution system or storage components
- Storage facility maintenance
- Development/implementation of operations plan
- Maintenance of adequate pressure
- Training on proper sampling technique



Common Causes of Contamination & Corrective Actions

Common Cause	Common Corrective Action(s)
Failure to disinfect (or improper disinfection) after maintenance work in the distribution system	<ul style="list-style-type: none">• Disinfection
Main breaks	<ul style="list-style-type: none">• Disinfection• Replacement/repair of distribution system components
Holes in storage tank, inadequate screening, etc.	<ul style="list-style-type: none">• Maintenance of storage facility• Addition of security measures• Development & implementation of an operations plan
Cracks in well seal, casing, etc.	<ul style="list-style-type: none">• Replacement/repair of well components



Common Causes of Contamination & Corrective Actions (cont.)

Common Cause	Common Corrective Action(s)
Loss of system pressure	<ul style="list-style-type: none">• Maintenance of adequate pressure• Valve maintenance• Addition or upgrade of on-line monitoring & control
Biofilm accumulation in the distribution system	<ul style="list-style-type: none">• Flushing• Maintenance of adequate pressure
Cross connections	<ul style="list-style-type: none">• Maintenance of adequate pressure• Installation of backflow prevention assembly/device• Implementation/upgrade of cross connection control program



Common Causes of Contamination & Corrective Actions (cont.)

Common Cause	Common Corrective Action(s)
Inadequate disinfectant residual	<ul style="list-style-type: none">• Disinfection• Flushing• Maintaining appropriate hydraulic residence time• Addition or upgrade of on-line monitoring & control
Contaminated sampling taps	<ul style="list-style-type: none">• Replacement/repair of distribution system components• Sampler training
Sampling protocol errors	<ul style="list-style-type: none">• Sampler training• Development & implementation of an operations plan



Frequently Asked Question

What if a system conducts a required assessment, sets a timeline for corrective action years into the future, which is accepted by the primacy agency, but triggers additional assessments before the corrective action can be completed?

ANSWER: The system would incur a Level 1 or Level 2 assessment for each triggered event and must correct any additional sanitary defects. If the system discovers that the contamination continues to be caused by the original triggering event, the system can perform interim measures that ensure the delivery of safe water.



Special Considerations for State Drinking Water Agencies



RTCG
Ground Water

Confirmation that Corrective Actions are completed and effective

Things to Consider:

- Pictures to verify
- Follow-up sampling after corrective actions have been completed



Benefits of a Licensed/Certified Operator for the Revised Total Coliform Rule (RTCRR)



RTCR Overview

- **The RTCR applies to all PWSs and requires time sensitive activities for:**
 - Ongoing baseline monitoring
 - Follow-up monitoring
 - Conducting assessments to find causes of microbial contamination
 - Fixing sanitary defects
 - Conducting start-up procedures for seasonal systems



How a Licensed / Certified Operator can help PWSs

Advantages of a Licensed / Certified Operator:

- Knowledgeable about sample collection techniques
- Understands water system components
- Can more easily follow through with identifying and fixing sanitary defects
- Familiar with the State drinking water agency



Resources for PWS



**SMALL WATER SYSTEM RESOURCE:
HIRING OR CONTRACTING A
LICENSED/CERTIFIED
WATER OPERATOR**

Purpose of this Document

This document is a resource that can help public water system decision-makers hire or contract with a licensed/certified water operator. Understanding how to select an operator (either a permanent employee or a contractor) and what to expect from that operator can help you ensure that your public water system complies with all state and federal regulations and delivers safe drinking water to your customers. This document offers suggestions on how to find the right operator for your system, helps you to communicate with your operator about water system responsibilities and assists with your documentation of expectations for operating the water system.

Typical public water systems that may find this resource useful include:

- Small towns
- Rural water districts
- Mobile home parks
- Homeowners' associations
- Small, privately-owned water systems

This document includes the following information:

1. How a licensed/certified operator can help ensure the provision of safe drinking water
2. A table of roles and responsibilities of decision-makers and operators that can help you understand what to expect of your operator
3. An interview tool to help you ask the right questions when interviewing potential operators
4. A list of possible topics to include in a written agreement with your operator
5. A list of suggested operator duties that can be included in a written agreement with your operator

What is a public water system?

A public water system provides water for drinking or other purposes (e.g., washing hands, bathing, cooking) to 25 or more persons at least 60 days out of the year, or has 15 or more service connections. A public water system can be publicly owned by municipalities, towns or counties. A public water system can also be privately owned, such as by homeowners' associations or mobile home parks.

Am I a decision-maker?

You are a public water system decision-maker if you make financial or management-related decisions for a public water system. Public water system decision-makers can include water system board members, water system owners, water system managers, elected officials or certain city clerks. Other examples may include homeowners' associations board members and those who own or operate mobile home parks.

What is a licensed/certified operator?

A licensed/certified operator is an individual who is licensed or certified by a state agency to operate and maintain a public water system in that state. A licensed/certified operator can help you operate your water system and maintain compliance with drinking water regulations.

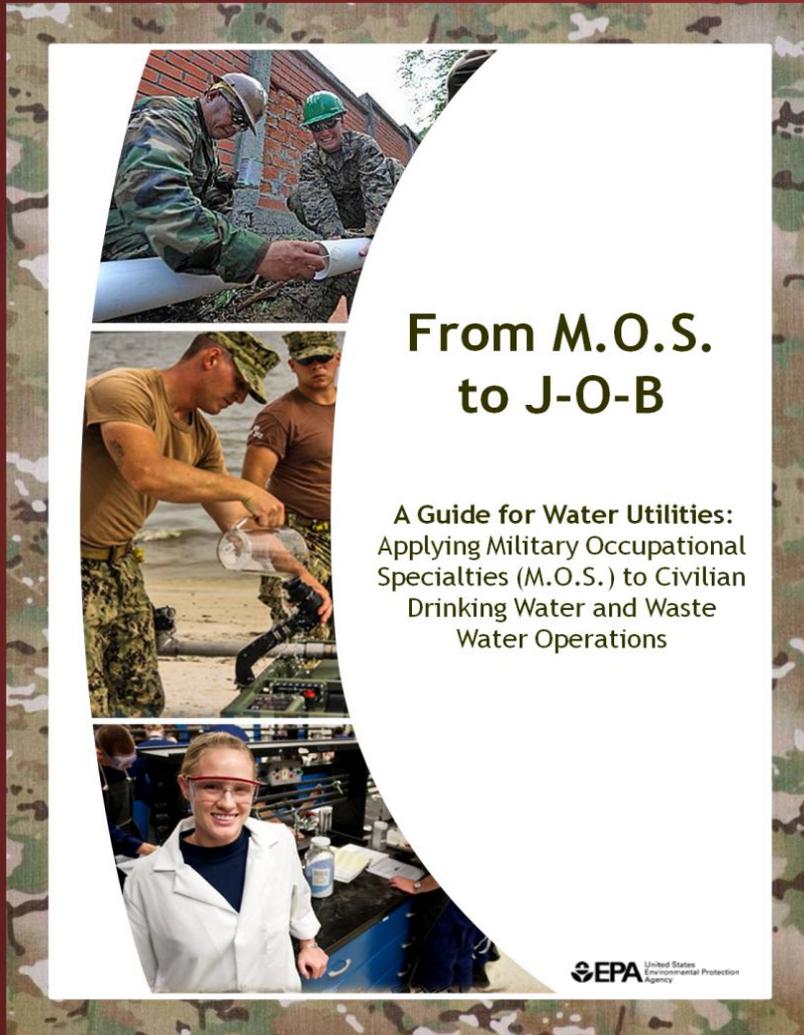
1

Main Content of Guide:

1. Introduction into PWS requirements
2. Responsibilities for Decision Makers
3. Benefits of Licensed/Certified Operator
4. Operator role vs. Decision Maker



Resources for PWS (continued)



Employer Benefits and Financial Incentives for Hiring Veterans

http://www.gibill.va.gov/documents/factsheets/OJT_Factsheet.pdf

Main Content of Guide:

- Understanding Veterans' Experience in Drinking Water Operations

Coming Soon!



Categories of RTCR Violations



Violations Under the RTCR

- *E. coli* MCL violation
- TT violations
- Monitoring violations
- Reporting violations

There is no Level 1 or Level 2 assessment trigger, violation type.

40 CFR 141.860



Compliance Possibilities

- 2 primary compliance tracks
 - *E. coli* MCL
 - More specific indicator of fecal contamination
 - TT based on assessment and corrective actions
 - Systems conducts assessment (Level 1 or 2) to identify sanitary defect(s)
 - System corrects any sanitary defect(s) identified
 - Completing these steps is the TT requirement

40 CFR 141.63 & 141.859



E. coli MCL Violation

A PWS is in violation of the *E. coli* MCL when any of these conditions occur:

<i>E. coli</i> MCL Violation Occurs with Any of These Sampling Result Combinations	
ROUTINE	REPEAT
EC+	TC+
EC+	Any missing repeat sample
TC+	EC+
TC+	TC+ (but no <i>E. coli</i> analyzed)

40 CFR 141.860(a)



Special Considerations for PWS

Failure to conduct repeat monitoring automatically triggers a Level 1 or Level 2 assessment.

-Workload: Three repeat samples for each routine TC+ versus an assessment with corrective actions

Be mindful about monitoring or the consequences of failure to sample!



Treatment Technique Violations

- A PWS is in violation of the RTCR TT when any of the following occur:
 - Failure to conduct a Level 1 or Level 2 assessment within 30 days of learning of the trigger
 - Failure to correct all sanitary defects from a Level 1 or Level 2 assessment within 30 days of learning of the trigger or in approved by the state
 - Failure of a seasonal system to complete state-approved start-up procedure prior to serving water to public

40 CFR 141.860(b)





Monitoring Violations

- The following two types of monitoring failures are monitoring violations:
 - Failure to take routine total coliform sample
 - Failure to analyze for *E. coli* following a TC+ routine sample
- **NOTE:** Not every failure to monitor is considered a monitoring violation! Please see CFR.

40 CFR 141.860(c)



Monitoring Failures



Violation consists of failure to:	Monitoring Violation	<i>E. coli</i> MCL Violation	Triggers Level 1 or Level 2 Assessment
Take routine sample	Yes		
Take/analyze for <i>E. coli</i> following a TC+ <u>routine</u> sample	Yes		
Take repeat samples following a TC+ routine sample			Triggers Level 1 assessment*
Take repeat sample following a EC+ routine sample		Yes	
Take/analyze for <i>E. coli</i> following a TC+ <u>repeat</u> sample		Yes	

**** A Level 2 assessment is triggered if a second Level 1 assessment was triggered within a rolling 12-month period.***

Special Considerations for State Drinking Water Agencies



How can my State continue to emphasize the importance of follow-up monitoring to a routine TC+ sample?

Things to Consider:

- State can require follow-up sampling as part of the assessment consultation and corrective actions procedures
 - Failure to conduct an appropriate assessment and/or corrective action is a treatment technique violation
- Incorporate follow-up sampling as part of the sampling plan



Roslin PWS

Case Scenario 1

A different PWS and story...



Roslin PWS – Profile (as of Jan 2016)



NTNCWS

Ground Water only, 3 wells

Not seasonal

Disinfects (<4 log)

Serves 956 persons

Monitors quarterly for Total Coliform

1 sample per monitoring period required

Applicable to GWR triggered source water monitoring

State regs do NOT allow dual GWR – RTCR samples

RTCR Ground Water



Roslin PWS – Case Scenario 1



Routine Sample Results for 4/10/2016:

Site G: EC+

Repeat Sample Results on 4/13/2016:

Site G: TC –

Site G upstream: TC –

Site G downstream: TC –

GWR triggered source water result on 4/13/2016 :

EC –

TC
Ground Water



Roslin PWS – Case Scenario 1



What is the State's compliance determination?

RTCR
Ground Water



Roslin PWS – Case Scenario 1

STATE RESPONSE



PWS is required to notify State within 24 hours of EC+ sample result(s)

RTCR
Ground Water



Roslin PWS – Case Scenario 1



STATE RESPONSE

ALL answers in back of handout: But you may want to add this note ...

- No *E. coli* MCL violation for April 2016
- Roslin PWS did not trigger a Level 1 nor Level 2 Assessment
- Remind PWS to take 3 routine samples in May 2016 because it had been on quarterly monitoring prior to April 2016.



Ground Water



Roslin PWS

Case Scenario 2



Roslin PWS – Case Scenario 2



Routine Sample Results for 5/12/2016:

Site B: TC +

Site S: EC+

Site G: TC +

How many total repeat samples are required?

How many routine samples will be required next month?

RCR Ground Water





Roslin PWS – Case Scenario 2

Routine Sample Results for 5/12/2016:

Site B: **TC +** Site S: **EC+** Site G: **TC +**

A total of 9 repeat samples are required for 5/14/2016 at the following locations:

Site B, upstream Site B, and downstream Site B

Site S, upstream Site S, and downstream Site S

Site G, upstream Site G, and downstream Site G

The PWS is required to take its normal 1 routine samples in June 2016 because PWS is now on monthly monitoring.



Roslin PWS – Case Scenario 2



But WAIT!

I'm a super tiny PWS

Except 1 upstream and 1 downstream Site G

No more places to sample

What are the State's next steps?

REGULATORY Ground Water



Roslin PWS – Case Scenario 2



STATE RESPONSE

- Update State SOP to re-review sample siting plans for adequate number of sample sites
 - for small PWSs on quarterly monitoring (which can have up to 9 repeat sample site locations if all three routine monitoring sites are TC+)
- Work with PWS for updating sample site plan

In addition to the following... (see next slide)



Roslin PWS – Case Scenario 2



STATE RESPONSE

OPTION1:

5/14/2016

3 original sites (Site B, Site S, and Site G)

1 upstream Site G

1 downstream Site G

3 GWR triggered source water samples (will NOT be used for RTCR as this State's regs do not allow)

On 5/15/2016

1 Site S and 1 Site B

5/16/2016

1 Site S and 1 Site B

TOTAL = 9 repeat samples



Roslin PWS – Case Scenario 2



STATE RESPONSE

OPTION2:

5/14/2016

1 larger volume (300mL) sample Site B

1 larger volume (300mL) sample Site S

1 site G, 1 upstream Site G, 1 downstream Site G

3 GWR triggered source water samples (will NOT be used for RTCR as this State's regs do not allow)

TOTAL = 5 repeat samples (with 2 of the 5 sites larger volume)



Roslin PWS – Case Scenario 2



PWS collects 9 repeats

RTCR
Ground Water



Roslin PWS – Case Scenario 2



SITE LOCATION	05/12/2016 ROUTINE	05/14/2016 REPEAT	05/15/2016 REPEAT	05/16/2016 REPEAT
Site B	TC +	TC –	TC –	TC –
Site S	EC+	TC –	TC –	TC –
Site G	TC +	TC –		
Upstream G	N/A	TC –		
Downstream G	N/A	TC –		

GWR Results: Well 1 EC– Well 2 EC– Well 3 EC–



Roslin PWS – Case Scenario 2



What is the State's compliance determination?

RTCR
Ground Water



Roslin PWS – Case Scenario 2



STATE RESPONSE

Roslin PWS triggered a Level 1 assessment, because more than 1 sample was TC+ in the month (3 routine TC+) for a PWS that collected less than 40 samples per month.

PWS does NOT have an E. coli MCL violation

RTCR
Ground Water



Roslin PWS – Case Scenario 2



STATE RESPONSE

OPTION 1:

Require Roslin PWS to conduct a Level 1 Assessment to find and correct any sanitary defects. Assessment is due within 30 days from 5/16/2016.

OPTION 2:

State can choose to do a Level 2 Assessment based on best professional judgement as State staff noted there were problems in April 2016 that may indicate there are ongoing or new issues continuing into May. Assessment is due within 30 days from 5/16/2016.



Roslin PWS

Case Scenario 3





Roslin PWS – Case Scenario 3

August 2016

Routine Sample Results:

Site G: **EC+**

**TYPO: Slide
196 –Fix as
follows:**



How many total repeat samples are required?

How many routine samples are required next month?



Roslin PWS – Case Scenario 3



Routine Sample Results for 8/09/2016:

Site G: EC+

**TYPO: Slide
198 –Fix as
follows:**

A total of 3 repeat samples are required for 8/09/2016 at the following locations:

Site G, upstream Site G, and downstream Site G

The PWS is required to take 1 routine samples in September 2016, since it has been on monthly monitoring since May 2016.



Roslin PWS – Case Scenario 3



Routine Sample Results for 8/09/2016:

Site G: EC+

On 8/11/2016, the State finds out that Roslin PWS did not take any repeat samples nor any GWR triggered source water samples for the routine total coliform positives in August.

RTG Ground Water



Roslin PWS – Case Scenario 3



But WAIT!

8/11/2016 I didn't know there was an issue. You never told me, says PWS.

RTIC Ground Water



Roslin PWS – Case Scenario 3



What is the State's compliance determination?

RTCR
Ground Water



Roslin PWS – Case Scenario 3

STATE RESPONSE



Ahem....

PWS is required to notify State within 24 hours of EC+ sample result(s)

RTCR
Ground Water



Roslin PWS – Case Scenario

3



STATE RESPONSE

**TYPO: Slide 289
–Fix as follows:**

- E. coli MCL Violation
- GWR triggered source water monitoring violation
- Treatment Technique Violation
 - Failure to conduct a timely Level 2 Assessment
 - No Assessment completed within 30 days from 8/09/2016.
- Modify PWS, lab, State communication SOP
- PWS notified to begin monthly monitoring for total coliforms. Remind PWS to take 1 sample in Sept.



Special Considerations for State Drinking Water Agencies



Establish SOPs for PWS, Laboratory, and State about:

- Communication about TC+ and EC+ samples
- Logistics - Have contact information available for PWS to contact appropriate person to do or get help for the assessment
- Establish interim measures for PWS on what to do for EC+ samples i.e. flushing, disinfection



Reporting and Recordkeeping Requirements



Reporting Requirements – RTCR

Systems must report to the state:

REQUIREMENT	TIMING
<i>E. coli</i> MCL violation, or <i>E. coli</i> positive routine sample	By end of current business day (or next business day if state office is closed)
TT violation	By end of next business day
Level 1 or 2 assessment report	Within 30 days of learning that the system has exceeded a TT trigger

40 CFR 141.861(a)(1)-(3)



Reporting Requirements (cont.)

Systems must report to the state:

REQUIREMENT	TIMING
Coliform monitoring violation	Within 10 days of learning of violation
Completion of corrective action, if occurring after submittal of an assessment report	When each corrective action is completed
Seasonal system certification of compliance with state-approved start-up procedures	Prior to serving water to the public

40 CFR 141.861 (a) (3)-(5)





Reporting Violations

- Failure to submit monitoring report or completed assessment form
- Failure to notify the state of a routine or repeat EC+ sample in a timely manner
- Failure to report completion of corrective action
- Seasonal systems
 - Failure to submit certification of completion of start-up procedures

40 CFR 141.860(d)



PWS Recordkeeping

PWSs must maintain records:	
REQUIREMENT	TIMING
Records of action taken by the system to correct violations of primary drinking water regulations	3 years
Public notices issued & certifications made	3 years
Records of microbiological analysis	5 years
Copies of monitoring plans	As long as analyses are required

40 CFR 141.33(a)-(c) & (f)



PWS Recordkeeping (cont.)

PWSs must maintain records:

REQUIREMENT

TIMING

Level 1 or 2 assessment forms

5 years

Documentation of corrective actions

5 years

Other available summary documentation of sanitary defects & corrective actions

5 years

Records of any repeat samples taken that meet the state's criteria for an extension of the 24-hour period for collecting repeat samples.

5 years

40 CFR 141.861(b)





State Recordkeeping

States must maintain records:

REQUIREMENT	TIMING
Microbiological analyses	1 year
Decisions to waive the 24-hour time limit for collecting repeat samples after a TC+ routine sample or sample invalidation	5 years
Decisions to waive the requirement for 3 routine samples the month following a TC+ sample	
Decisions to invalidate a TC+ sample	
Completed & approved Level 1 or 2 assessments	
Reports from systems of completed corrective actions	

40 CFR 142.14(a)(1) & 142.14(a)(10)(i)





State Recordkeeping (cont.)

States must maintain records:

REQUIREMENT	TIMING
Decisions to reduce the total coliform monitoring frequency for a NCWS using only GW and serving 1,000 or fewer people to less than once per quarter	In such a manner that each system's current status may be determined
Decisions to reduce the total coliform monitoring frequency for a CWS serving 1,000 or fewer people to less than once per month	
Decisions to reduce the total coliform monitoring frequency for a NCWS using only GW and serving more than 1,000 people during any month the system serves 1,000 or fewer people	
Decisions to allow a system to forgo <i>E. coli</i> testing of a TC+ sample if that system assumes that the sample is <i>EC+</i>	

40 CFR 142.14(a)(10)(ii)(A) – (D)



Reporting Violations

- A PWS is in violation of reporting requirements when any of the following occurs:
 - Failure to submit monitoring report
 - Failure to submit a completed Level 1 or Level 2 assessment form within 30 days of learning of the trigger
 - Failure to notify the state by the end of the next business day following an *E. coli*-positive sample or *E. coli* MCL violation
 - Failure for a seasonal system to timely submit certification of completion of state-approved start-up procedure (prior to serving water to the public)

40 CFR 141.860(d)



Public Notification & Consumer Confidence Report Requirements





Tier 1 & 2 PN Requirements

Tier	Violation
Tier 1	Has an <i>E. coli</i> -positive repeat sample following TC+ routine sample
	Has TC+ repeat sample following an <i>E. coli</i> -positive routine sample
	Fails to take all required repeat samples following an <i>E. coli</i> -positive routine sample
	Fails to test for <i>E. coli</i> when any repeat sample is TC+
Tier 2	TT violation resulting from failure to perform Level 2 assessment or corrective action
	TT violation resulting from failure to perform Level 1 assessment or corrective action
	Failure of non-community seasonal systems to complete state-approved start-up procedure prior to serving water to the public

40 CFR 141.63(c); 141.201; 141.860(a)-(b); Appendix A to Subpart Q –IA.1.b; IA.2.b & IA.2.c



Tier 3 PN Requirements



Tier	Violation
Tier 3	Monitoring Violations:
	Failure to take every required routine or additional routine sample.
	Failure to analyze for <i>E. coli</i> following a total coliform-positive routine sample.
	RTCR Reporting Violations:
	Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment in a timely manner.
	Failure to notify the state following an <i>E. coli</i> -positive sample in a timely manner.
Failure to submit certification of completion of state-approved start-up procedure by a seasonal system.	

40 CFR 141.860(c) & (d); Appendix A to Subpart Q – I.A.1.b & I.A.2.b





Tier 1 PN Requirement

- *E. coli* MCL violation = Tier 1 PN



Within 24 hours
of violation

Issue Tier 1 PN
(with modified standard
health effects language)

Consult Primacy Agency

- Repeat notices: timing, form, manner, frequency, and content established by the primacy agency
- Systems must comply with any additional PN requirements

40 CFR 141.202(a)-(b)





Tier 2 PN Requirement

- No monthly *E. coli* MCL violation
- TT violations = Tier 2 PN



Within 30 days of
learning of violations



Issue Tier 2 PN
(with modified standard
health effects language)



Every 3 months that
problem persists



Repeat notice

40 CFR 141.203(a)-(b)





Tier 3 PN Requirement

- Monitoring violations and reporting violations



Issue Tier 3 PN*

Within 1 year of violation



Repeat notice



Can be detailed
in CCR

Every 12 months that
problem persists

* Tier 3 PN can be issued in the CCR if it is distributed within 12 months of the violation.

40 CFR 141.204



Polling Question #12

2012 Ground Water



Polling Question #12

Tier 3 PN is required for which of the following reporting violations? (Select all that apply)

- A. Failure to submit a monitoring report or completed assessment form in a timely manner after the PWS has properly conducted monitoring or an assessment.
- B. Failure to notify the state in a timely manner following an *E. coli*-positive sample, as required by 40 CFR 141.858(b)(1).
- C. Failure to submit certification of completion of state-approved start-up procedure by a seasonal NCWS.



Polling Question #12: Answer

- Tier 3 PN is required for which of the following reporting violations? (Select all that apply)

- A. Failure to submit a monitoring report or completed assessment form in a timely manner after the PWS has properly conducted monitoring or an assessment.
- B. Failure to notify the state in a timely manner following an *E. coli*-positive sample, as required by 40 CFR 141.858(b)(1).
- C. Failure to submit certification of completion of state-approved start-up procedure by a seasonal NCWS.



Health Effects Language

E. coli MCL Violation

Tier 1

“***E. coli* are bacteria** whose presence indicates that the water may be contaminated with human or animal wastes. **Human pathogens** in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.”

40 CFR 141, Appendix B to Subpart Q –1g



Health Effects Language (cont.)

TT Violations (assessment triggered by presence of *E. coli*)

Tier 2

“Coliforms are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for *E. coli*, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found.”

System must also include the following applicable sentences:

“We failed to conduct the required assessment.”

“We failed to correct all identified sanitary defects that were found during the assessment that we conducted.”



Health Effects Language (cont.)

TT Violations (assessment triggered by presence of total coliform)

Tier 2

“Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found.”

System must also include the following sentences:

“We failed to conduct the required assessment.”

“We failed to correct all identified sanitary defects that were found during the assessment that we conducted.”

40 CFR 141, Appendix B to Subpart Q –1e



Health Effects Language (cont.)

TT Violations (Seasonal Systems)

Tier 2

Failure to monitor for total coliforms or *E. coli* prior to serving water to the public: “We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we ‘did not monitor or test’ or ‘did not complete all monitoring or testing’ for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time.”

Failure to complete other actions: Appropriate standard content elements in 40 CFR 141.205(a).

40 CFR 141.205(d)(2); Appendix B to Subpart Q –1h



Consumer Confidence Reports (CCR)

- CWS must report
 - Until March 31, 2016
 - Total coliform, fecal coliform & *E. coli*: number or percentage of positive results
 - Starting April 1, 2016
 - *E. coli*: number of positive results
 - Level 1 or Level 2 assessment language

40 CFR 141.153(c)(4); 141.153(d)(4)(vii), (viii), & (x)



CCR – Case Specific (cont.)

- CCR elements depend on the following case or violation:
 - Case 1: For systems required to comply with L1 and L2 assessment (not due to an EC MCL violation) requirements
 - Case 2: For systems required to comply with the L2 assessment requirement due to an EC MCL violation
 - Case 3: For systems that detected EC and has violated the EC MCL
 - Case 4: For systems that detected EC but did not violate the EC MCL
- NOTE: Definitions for Level 1 and Level 2 assessments for cases 1 and 2 above

40 CFR 141.153(h)(7)(i), (ii), (iii), & (iv)



CCR Requirements – Case 1

Case 1: L1 & L2 Assessments NOT due to *E. coli* MCL Violation

141.153(c)(4), 141.153(h)(7)(i)

Systems must include in CCR:

1. Definition of Level 1 and/or Level 2 assessment
2. Health effects language for total coliforms
3. Number of Level 1 assessments required, number of Level 1 assessments completed, number of corrective actions required, and number of corrective actions completed
4. Number of Level 2 assessments required, number of Level 2 assessments completed, number of corrective actions required, and number of corrective actions completed
5. For systems that fail to complete all required assessments or correct all identified sanitary defects, the cause of the TT violation

141.153(c)(4); 141.153(h)(7)(i)



CCR Requirements – Case 1 (cont.)

Case 1: L1 Assessment and L2 Assessment not due to *E. coli* MCL Violation

Definitions

“Level 1 assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

- 1 Level 2 assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system. “*

40 CFR 141.153(c) (4)(i)-(ii)



CCR Requirements – Case 1 (cont.)

Case 1: L1 Assessment and L2 Assessment not due to *E. coli* MCL Violation

Health Effects Language

- 2 “Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliform indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.”

40 CFR 141.153(h)(7)(i)(A)



CCR Requirements – Case 1 (cont.)

Case 1: L1 Assessment and L2 Assessment not due to *E. coli* MCL Violation

Results

3 “During the past year we were required to conduct ___ Level 1 assessment(s). ___ Level 1 assessment(s) were completed. In addition, we were required to take ___ corrective actions and we completed ___ of these actions.”

4 “During the past year ___ Level 2 assessments were required to be completed for our water system. ___ Level 2 assessments were completed. In addition, we were required to take ___ corrective actions and we completed ___ of these actions.”

40 CFR 141.153(h)(7)(i)(B)-(C)



CCR Requirements – Case 1 (cont.)

Case 1: L1 Assessment and L2 Assessment not due to *E. coli* MCL Violation

Failures

For systems that have a TT violation for failing to complete all the required assessments or corrective actions, include one or both of the following statements, as appropriate:

- 5
- “During the past year we failed to conduct all of the required assessment(s).”
 - “During the past year we failed to correct all identified defects that were found during the assessment.”

40 CFR 141.153(h)(7)(i)(D)



CCR Requirements – Case 2

Case 2: L2 Assessment due *E. coli* MCL Violation

141.153(c)(4)(ii),
141.153(h)(7)(ii)

Systems must include in CCR:

1. Definition of Level 2 assessment
2. Health effects language for *E. coli*
3. Reason for conducting Level 2 assessment (i.e., because of EC MCL violation), number of corrective actions required, and number of corrective actions completed
4. For systems that fail to complete all required assessments or correct all identified sanitary defects, the cause of the TT violation

40 CFR 141.153(h)(7)(ii)



CCR Requirements – Case 2 (cont.)

Case 2: L2 Assessment due *E. coli* MCL Violation

Definition

1

Level 2 assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system.

40 CFR 141.153(c)(4)(ii)



CCR Requirements – Case 2 (cont.)

Case 2: L2 Assessment due *E. coli* MCL Violation

Health Effects Language

2 “*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.”

40 CFR 141.153(h)(7)(ii)(A)



CCR Requirements – Case 2 (cont.)

Case 2: L2 Assessment due *E. coli* MCL Violation

Results

Reason for conducting Level 2 assessment:

- 3** “We were required to complete a Level 2 assessment because we found *E. coli* in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.”

40 CFR 141.153(h)(7)(ii)(B)



CCR Requirements – Case 2 (cont.)

Case 2: L2 Assessment due *E. coli* MCL Violation

Failures

For systems that have a TT violation for failing to complete all the required assessments or corrective actions, include one or both of the following statements, as appropriate:

- 4
- “We failed to conduct the required assessment.”
 - “We failed to correct all sanitary defects that were identified during the assessment that we conducted.”

40 CFR 141.153(h)(7)(ii)(C)



CCR Requirements – Case 3

Case 3: *E. coli* Detected and *E. coli* MCL Violation

141.153(h)(7)(iii)

Systems must include in CCR:

1. Completed table required by 141.153(d)(4) – **MCL, MCLG + Health Effects**
2. Reason(s) for non-compliance
 - “We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.”
 - “We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.”
 - “We failed to take all required repeat samples following an *E. coli*-positive routine sample.”
 - “We failed to test for *E. coli* when any repeat sample tests positive for total coliform.”

141.153(h)(7)(iii)



CCR Requirements – Case 4

Case 4: *E. coli* Detected but no *E. coli* MCL Violation

141.153(h)(7)(iv)

Systems must include in CCR:

1. Must complete table required by 141.153(d)(4)
2. May include statement that explains that although the system has detected *E. coli*, they are not in violation of the *E. coli* MCL.

40 CFR 141.153(h)(7)(iv)



Polling Question #13

2014 Ground Water



Polling Question #13

When does your state/EPA Regional Direct Implementation RTCR team intend on implementing all of the RTCR provisions?

- A. Between Jan 1, 2014 – Dec 31, 2014
- B. Between Jan 1, 2015 – Dec 31, 2015
- C. Between Jan 1, 2016 – Dec 31, 2016
- D. Between Jan 1, 2017 – Dec 31, 2017
- E. After Jan 1, 2018

RTCR
Ground Water



Polling Question #13: Answer

When does your state/EPA Regional Direct Implementation RTCR team intend on implementing all of the RTCR provisions?

A. Between Jan 1, 2016 – Dec 31, 2016

PWS are required to begin complying with the RTCR no later than April 1, 2016



Other Rule Aspects



Variations & Exemptions

- EPA is not allowing variations or exemptions to the *E. coli* MCL
- EPA is eliminating the variance provision that allows a system to demonstrate to the state the violation of MCL is due to biofilm & not other contamination

40 CFR 141.4(a)-(b)



Consecutive and Wholesale Systems

- Consecutive systems must monitor for TC based on:
 - Population served by the consecutive system
 - Source type of the wholesale system
- A consecutive GW system that has a TC+ sample collected under the RTCR must notify the wholesale system within 24 hours
 - Wholesale systems must conduct triggered source water monitoring under the GWR
 - If the source water sample is fecal indicator (+), the wholesale system must notify the consecutive system within 24 hours and conduct additional source water monitoring

40 CFR 141.402(c)(4)



Summary

2010
Ground Water



Sampling Plan

TCR	RTCR
<p>Systems must collect samples that are representative of water throughout the distribution system & the monitoring period according to a written sample siting plan</p>	<p>Systems must develop a written sample siting plan that identifies sampling sites & a sample collection schedule that are representative of water throughout the distribution system, no later than March 31, 2016</p>
	<p>Sites may include a customer's premise, dedicated sampling station or other designated compliance sampling station</p>
	<p>Routine, repeat & GWR (if the system is subject to the rule) sampling sites must be reflected in the plan</p>
<p>Plans are subject to state review & revision</p>	<p>Plans are subject to state review & revision</p>

Seasonal Systems

TCR	RTCRCR
Seasonal PWS has the same requirements as other systems of the same size & type	All seasonal PWSs must demonstrate (certify) completion of a state-approved start-up procedure.
	Routine (baseline) monitoring is monthly. For reduced monitoring: <ul style="list-style-type: none">• Seasonal PWSs must meet the same criteria as other systems of its size and type• Sample site plan must designate the time period for monitoring based on high demand or vulnerability
	State may exempt seasonal system from requirements (e.g., start-up procedure) if the entire distribution system remains pressurized. Systems monitoring less than monthly must still monitor during the designated vulnerable period.

Routine Monitoring Frequency (Baseline)

TCR	RTCR
NCWS (GW) $\leq 1,000$: 1 sample per quarter	Same as current TCR
CWS $\leq 1,000$: 1 sample per month	
PWS $> 1,000$: monthly based on population	
Seasonal systems monitor based on the size & type of system as identified above	<ul style="list-style-type: none"> Seasonal systems $\leq 1,000$: 1 sample per month Seasonal systems $> 1,000$: monthly based on population

40 CFR 141.856(a)(4) & (b); 141.857(a)(4) & (b)



Repeat Monitoring – # of Samples

TCR	RTCRCR
PWS serving $\leq 1,000$: 4 repeat samples for every TC+ routine sample.	<ul style="list-style-type: none">• All PWSs must take 3 repeat samples for every TC+ routine sample regardless of whether PWS has already triggered an assessment.• Also must take additional repeats for TC+ repeat samples until TT trigger (including EC MCL) reached and system notifies the state.
PWS serving $> 1,000$: 3 repeat samples for every TC+ routine sample.	

40 CFR 141.21(b) & 141.858(a)



Repeat Monitoring – Locations

TCR	RTCRC
<p>Repeat samples must be collected from the original TC+ site, at least one at a tap within 5 service connections upstream, & at least one at a tap within 5 service connections downstream</p>	<p>PWS can collect repeat samples using the same procedure as in the TCR, or PWS can specify in their sample siting plan either fixed alternative locations or criteria for selecting sites on a situational basis via a standard operating procedure</p>

40 CFR 141.853(c)(5)



Additional Routine Monitoring

TCR	RTCR
<p>PWS taking < 5 routine samples per month (PWS serving $\leq 4,100$)</p> <ul style="list-style-type: none">• Must take at least 5 routine samples in the month after a TC+ sample.	<p>No longer a requirement for systems that monitor at least monthly.</p> <p>PWSs taking samples less frequently than once per month (i.e., quarterly or annually)</p> <ul style="list-style-type: none">• Must take at least 3 routine samples in a month after a TC+ sample.

40 CFR 141.21(b)(5); 141.854(j); 141.855(f) & 141.857(b)



Acute MCL Violation

TCR	RTCR
Fecal coliform-positive repeat sample.	<i>E. coli</i> -positive repeat sample following a total coliform-positive routine sample.
<i>E. coli</i> -positive repeat sample	Total coliform-positive repeat sample following an <i>E. coli</i> -positive routine sample.
Total coliform-positive repeat sample following a fecal coliform-positive or <i>E. coli</i> -positive routine sample	Fails to take all required repeat samples following an <i>E. coli</i> -positive routine sample.
	Fails to test for <i>E. coli</i> when any repeat sample tests positive for total coliform.

40 CFR 141.63 & 141.860(a)



MCL & TT Violations & PN

TCR	RTCR
<p>Violation of TC MCL when fecal coliform or <i>E. coli</i> are present – Tier 1 PN PWS must notify state re: single <i>E. coli</i> /FC+ result</p>	<p>Violation of <i>E. coli</i> MCL – Tier 1 PN PWS must notify state re: single <i>E. coli</i>+ result</p> <p>Monthly TC MCL violation is dropped – triggers assessment & corrective action instead</p> <p>A TT violation occurs when a PWS fails to conduct required assessment or corrective action – Tier 2 PN</p>
<p>Violation of monthly TC MCL – Tier 2 PN</p>	<p>A TT violation occurs when a seasonal system fails to complete a state-approved start-up procedure prior to serving water to the public – Tier 2 PN</p>

40 CFR 141.63(b) & (d); 141.202; 141.203 & 141.860(a)-(b)



Monitoring (M) & Reporting (R) Violations & PN

TCR

RTCR

M&R
violation
– Tier 3
PN

- Monitoring violations and reporting violations will be tracked separately – Both require Tier 3 PN
- Newly specified M&R violations:
 - **M** - Failure to take every required routine or additional routine sample in a compliance period
 - **M** - Failure to analyze for *E. coli* following a TC+ routine sample
 - **R** - Failure to submit a monitoring report or completed assessment form after monitoring or conducting assessment correctly/timely
 - **R** - Failure to notify the state following an *E. coli*+ sample
 - **R** - Failure to submit certification of completion of state-approved start-up procedure by a seasonal system

40 CFR 141.204; 141.860(c)-(d)



PN & CCR Rules – Health Effects Language

TCR	RTCRCR
<p>Mandatory health effects language for TC & fecal coliforms/<i>E. coli</i></p>	<p>TC health effects language changed to reflect nature of TC as an indicator.</p> <p>The health effects language for fecal coliforms/<i>E. coli</i> has been replaced with health effects language for <i>E. coli</i> only.</p>

40 CFR 141, Appendix B to Subpart Q



CCR Language

TCR	RTCRCR
Information related to highest monthly TC results (number or percentage) & the total number of fecal coliforms/ <i>E. coli</i> -positive samples	Information on the total number of <i>E. coli</i> -positive samples
	Information about the number of assessments required & corrective actions taken, and, if appropriate, the number of assessments & corrective actions not completed

40 CFR 141.153(d)(4) & 141.153(h)(7)



Analytical Methods

TCR	RTCRCR
<p>PWS must conduct TC analysis in accordance with the methods listed in 40 CFR 141.21(f)</p>	<p>Changes to methods, include:</p> <ul style="list-style-type: none">• Change in holding time definition• Requiring de-chlorination agent• Requiring autoclaving of MF funnel <p>Revised & clarified the methods table (40 CFR 141.852)</p>

40 CFR 141.852



Variations, Exemptions & Best Available Technology (BAT)

TCR	RTCR
<p>Variations or exemptions may not be granted for TC MCLs except for persistent growth of TC (biofilm).</p>	<p>Variations or exemptions no longer needed since TC MCL is no longer effective.</p>
<p>Variations or exemptions may not be granted for <i>E. coli</i> MCLs.</p>	<p>Variations or exemptions may not be granted for <i>E. coli</i> MCL.</p>
<p>BAT includes proper maintenance of the distribution system</p>	<ul style="list-style-type: none"> • Cross connection control added to the BAT distribution system maintenance activities • Updated filtration (SW) & disinfection (SW & GW) BAT to include IESWTR, LT1ESWTR, LT2ESWTR & GWR

40 CFR 142.63(b) & (e)



RTCR Technical Corrections Planned for Publication in Federal Register (Total=6)

NOTE: Suggested language in
(yellow) may change in FR.



RTCR Technical Corrections Planned for Publication in Federal Register



1. Incorrect cross-reference

§141.861 REPORTING AND RECORDKEEPING

(b) *Recordkeeping.* (1) The system must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under § 141.858 § 141.859 for state review. This record must be maintained by the system for a period not less than five years after completion of the assessment or corrective action.



RTCR Technical Corrections Planned for Publication in Federal Register

2. Incomplete list of items to be included in state primacy application

142.16 SPECIAL PRIMACY REQUIREMENTS

(q) Requirements for states to adopt 40 CFR part 141 subpart Y – Revised Total Coliform Rule

(2) The state's application for primacy for subpart Y must include a written description for each provision included in paragraphs (q)(2)(i) through ~~(viii)~~ (ix) of this section.





RTCR Technical Corrections Planned for Publication in Federal Register (cont.)

3. Vague/confusing language

142.16 SPECIAL PRIMACY APPLICATIONS

142.16(q)(2)(ii) Reduced Monitoring Criteria – An indication of whether the state will adopt the reduced monitoring provisions of 40 CFR part 141, subpart Y. If the state adopts the reduced monitoring provisions, it must describe the specific types or categories of water systems that will be covered by reduced monitoring and whether the state will use all or a reduced set of the optional criteria. For each of the reduced monitoring criteria, both mandatory and optional, the state must describe how the criteria will be evaluated to determine when systems qualify.

NOTE: “Optional” criteria refers to criteria found in 141.854(h)(2) and 141.855(d)(1)(iii) of this title, where the state selects at least one.

40 CFR 142.16(q)(2)(ii)



RTCR Technical Corrections Planned for Publication in Federal Register (cont.)



3. Vague/confusing language

142.16 SPECIAL PRIMACY APPLICATIONS

142.16(q)(2)(ii) Reduced Monitoring Criteria – An indication of whether the state will adopt the reduced monitoring provisions of 40 CFR part 141, subpart Y. If the state adopts the reduced monitoring provisions, it must describe the specific types or categories of water systems that will be covered by reduced monitoring and whether the state will use all or a reduced set of the optional criteria specified in §§ 141.854(h)(2) and 141.855(d)(1)(iii) of this Title. For each of the reduced monitoring criteria, both mandatory and optional, the state must describe how the criteria will be evaluated to determine when systems qualify.

40 CFR 142.16(q)(2)(ii)





RTCR Technical Corrections Planned for Publication in Federal Register (cont.)

4. Clarify table in Appendix A to Subpart Q (Public Notification of Drinking Water Violations)

Contaminant	MCL/MRDL/TT violations ²		Monitoring, testing & reporting procedure violations	
	PN Tier required	Citation	PN Tier required	Citation
I. Violations of National Primary Drinking Water Regulations (NPDWR): ³				
A. Microbiological Contaminants				
1.a Total coliform bacteria †	2	141.63(a)	3	141.21(a)-(e)
1.b Total coliform (Monitoring or TT violations resulting from failure to perform assessments or corrective actions, <u>monitoring violations, and reporting violations</u>) ‡	2	141.860(b)(1)	3	<u>141.860(c)(1)</u> <u>141.860(d)(1)</u>
1.c Seasonal system failure to follow State-approved start-up plan prior to serving water to the public <u>or failure to provide certification to State.</u> ‡	2	141.860(b)(2)	<u>3</u>	<u>141.860(d)(3)</u>



RTCRC Technical Corrections Planned for Publication in Federal Register (cont.)



Contaminant	MCL/MRD/TT violations ²		Monitoring, testing & reporting procedure violations	
	PN Tier required	Citation	PN Tier required	Citation
1.c Seasonal system failure to follow state-approved start-up plan prior to serving water to the public <u>or failure to provide certification to state.</u> ‡	2	141.860(b)(2)	<u>3</u>	<u>141.860(d)(3)</u>



RTCR Technical Corrections Planned for Publication in Federal Register (cont.)



Contaminant	MCL/MRDL/TT violations ²		Monitoring, testing & reporting procedure violations	
	PN Tier required	Citation	PN Tier required	Citation
2.a Fecal coliform/ <i>E. coli</i> †	1	141.63(b)	⁴ 1,3	141.21(e)
2.b <i>E. coli</i> (<u>MCL, monitoring, and reporting violations</u>)‡	1	141.860 (a)	3	141.860(c)(<u>2</u>) <u>141.860(d)(1)</u> 141.860(d)(2)
2.c <i>E. coli</i> (TT violations resulting from failure to perform level 2 assessments or corrective action) ‡	2	141.860(b)(<u>1</u>)		





RTCR Technical Corrections Planned for Publication in Federal Register (cont.)

5.OFR mistake: citation for an analytical method in the wrong column

Organism	Methodology Category	Method ¹	Citation ¹
Total Coliforms		***	
	Enzyme Substrate Methods	Colilert [®] <u>Standard Methods Online</u> <u>9223 B-97</u> ^{2,5}	Standard Methods 9223 B (20 th ed.; 21 st ed.) ^{2,5} <u>Standard Methods Online</u> <u>9223 B-97</u> ^{2,5}
		***	***

141.852(c)(5)



RTCR Technical Corrections Planned for Publication in Federal Register (cont.)



6. Imperfect numbering

- 141.855 ROUTINE MONITORING REQUIREMENTS FOR COMMUNITY WATER SYSTEMS SERVING 1,000 OR FEWER PEOPLE USING ONLY GROUND WATER
 - (a) ***
 - (d) *Criteria for reduced monitoring.*
- (1) ***
 - (2) Reserved
 - (e) ***

RTCR
Ground Water



Questions Regarding the RTCR?

US EPA Headquarters

- **Cindy Mack, RTCR Rule Manager**
Email: mack.cindy-y@epa.gov; 202-564-6280
- **Nancy Ho, Environmental Scientist**
Email: ho.nancy@epa.gov; 202-564-3896
- **TCR Website:**
<http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/index.cfm>
- **RTCR Website:**
http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm
The Feb. 2013 Final RTCR can be found at this website, along with the RTCR Quick Reference Guide (QRG).



US EPA Regions

RTCR Regional Technical Contacts

Region	Staff	Email
1	Denise Springborg	Springborg.Denise@epa.gov
1	Kevin Reilly	Reilly.Kevin@epa.gov
2	Michael Lowy	Lowy.Michael@epa.gov
3	Kelly Moran	Moran.Kelly@epa.gov
3	Patti-Kay Wisniewski	Wisniewski.Patti-Kay@epa.gov
4	Pamela Riley	Riley.Pamela@epa.gov
4	Brian Smith	Smith.Brian@epa.gov
4	Dale Froneberger	Froneberger.Dale@epa.gov
5	Miguel Del Toral	Deltoral.Miguel@epa.gov



US EPA Regions

RTCRC Regional Technical Contacts

(cont.)

Region	Staff	Email
6	Andrew Waite	Waite.Andrew@epa.gov
7	Robert Dunlevy	Dunlevy.Robert@epa.gov
7	Stan Calow	Calow.Stan@epa.gov
8	Breann Bockstahler	Bockstahler.Breann@epa.gov
8	Robert Clement	Clement.Robert@epa.gov
9	Andrew Sallach	Sallach.Andrew@epa.gov
9	Bruce Macler	Macler.Bruce@epa.gov
10	Cyndi Grafe	Grafe.Cyndi@epa.gov
10	Wendy Marshall	Marshall.Wendy@epa.gov

